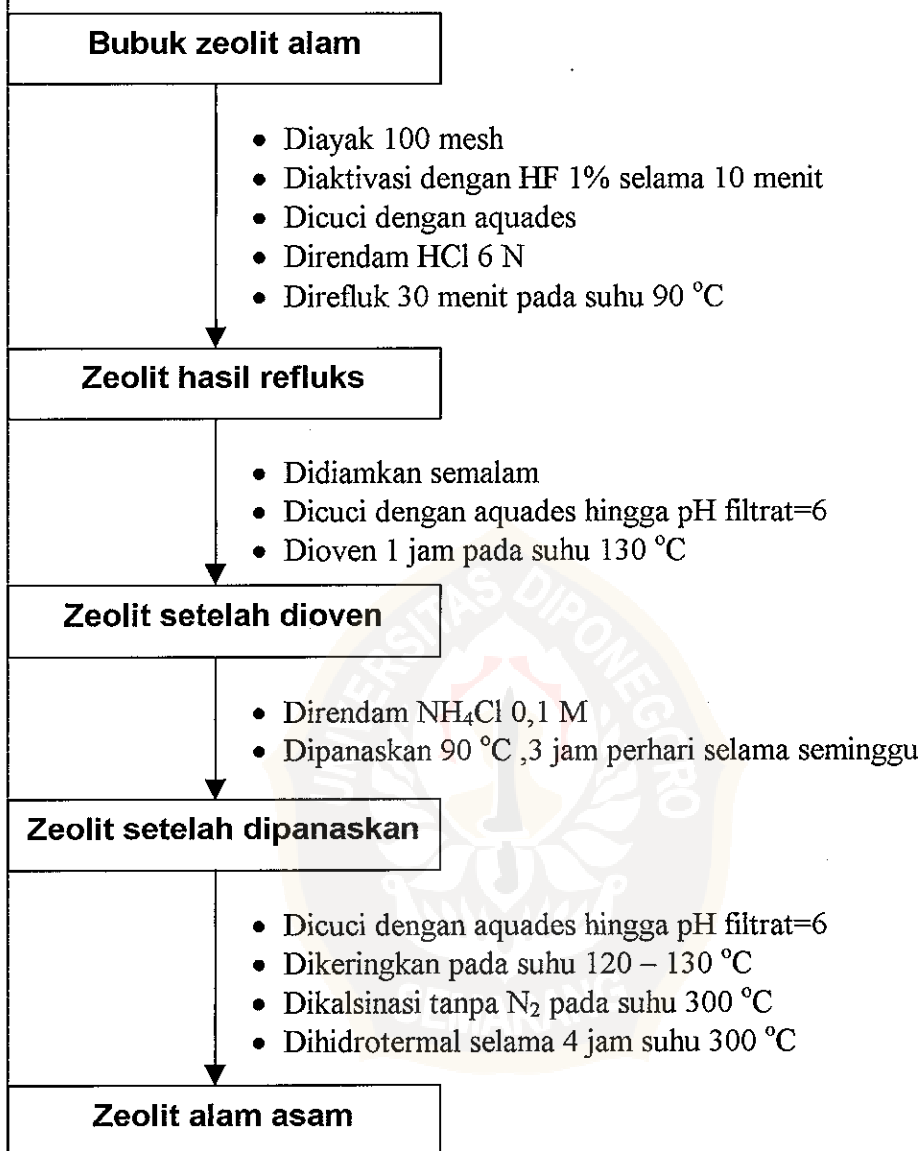
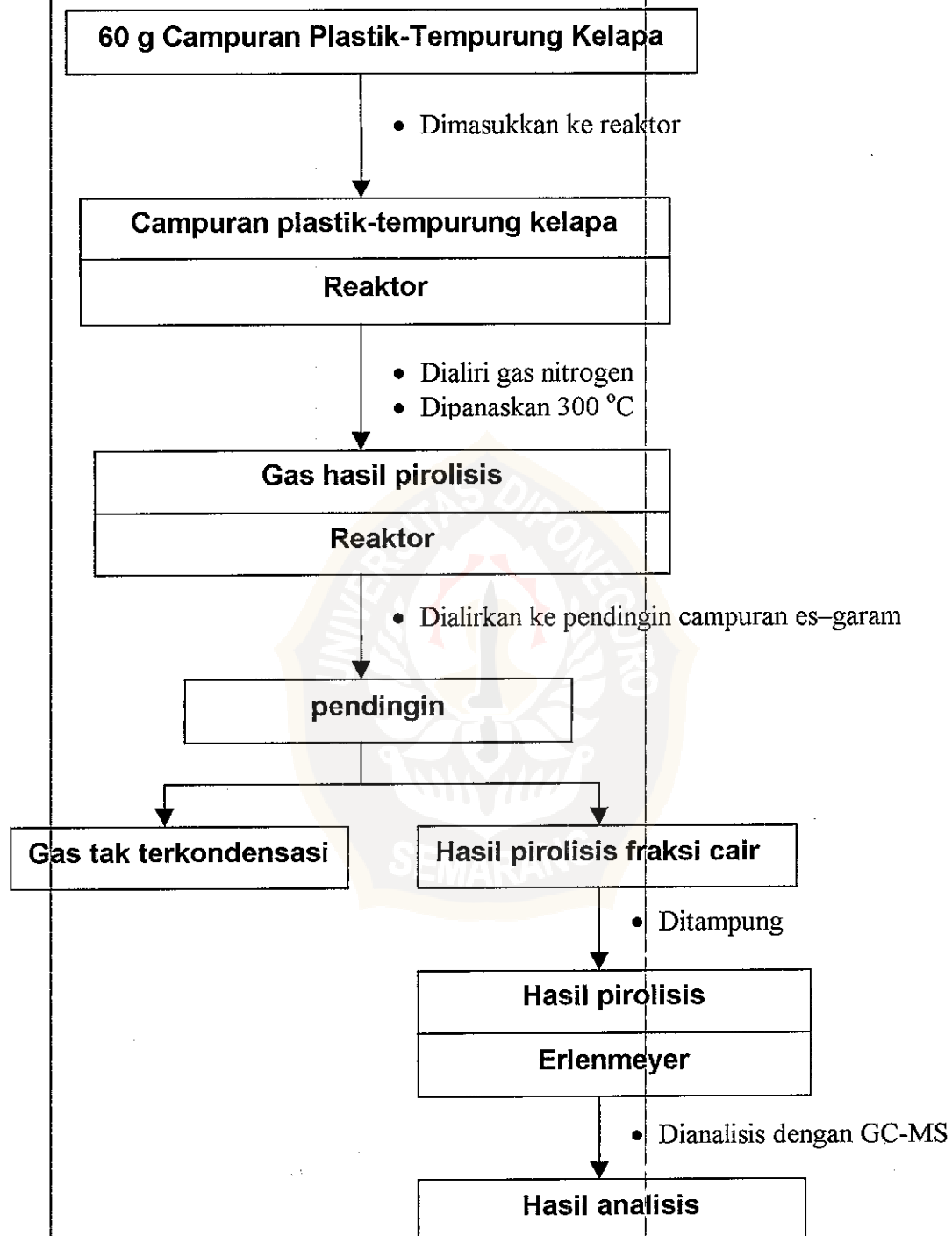
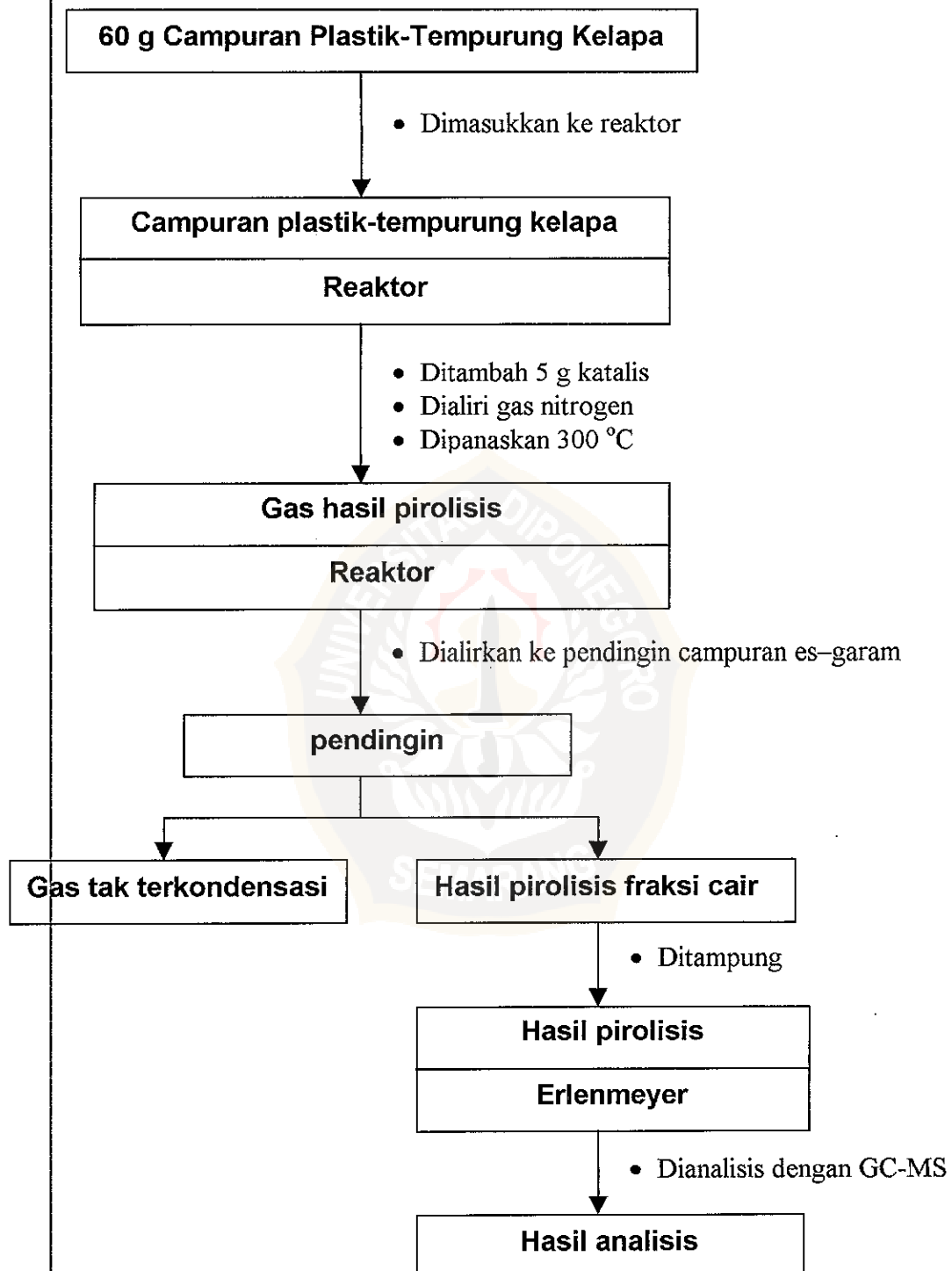
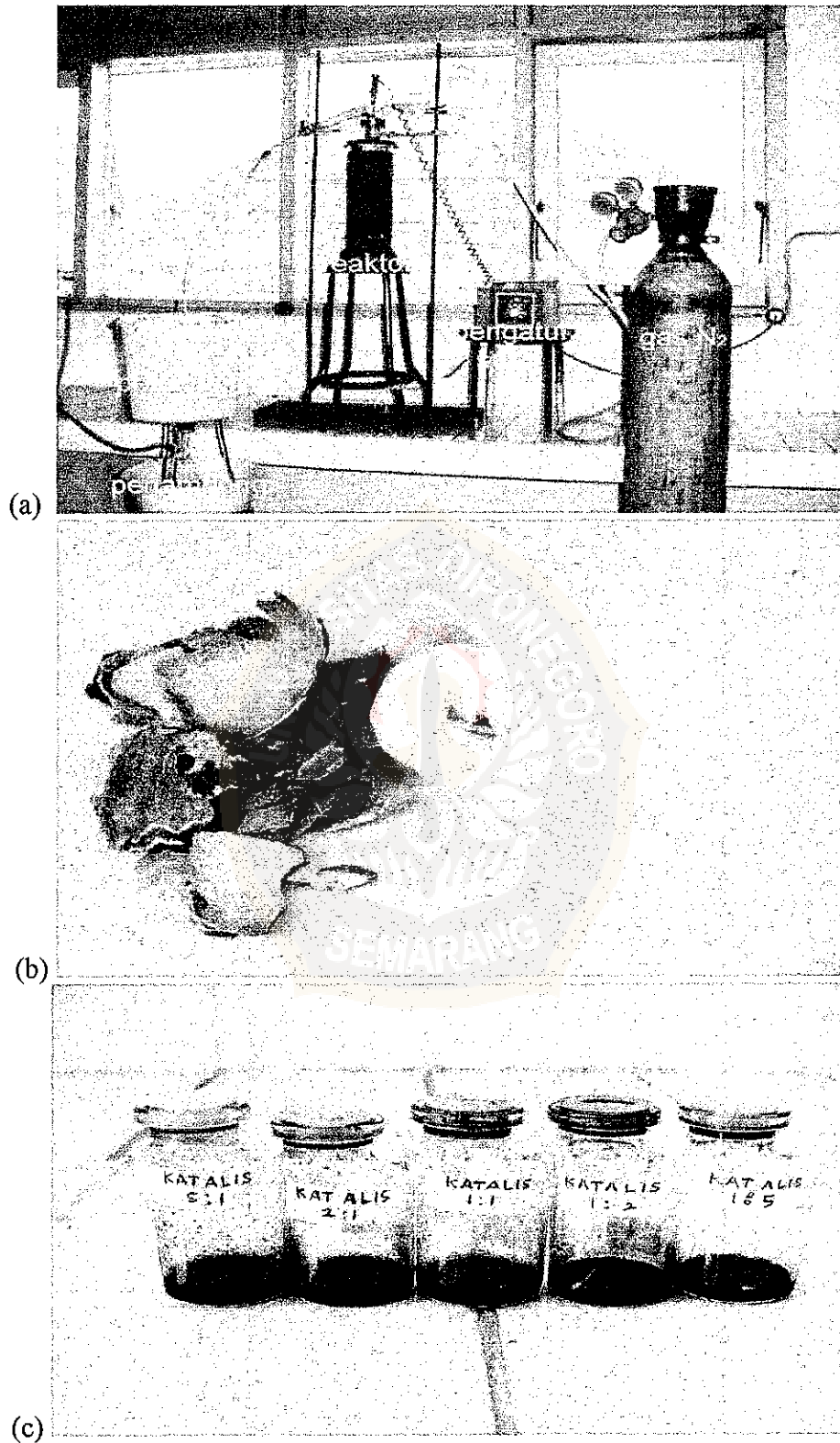


Lampiran A. Skema preparasi katalis

Lampiran B. Skema pirolisis campuran plastik-tempurung kelapa

Lampiran C. Skema pirolisis katalitik campuran plastik-tempurung kelapa

Lampiran D. (a) Foto rangkaian alat, (b) plastik dan tempurung kelapa dan (c) hasil pirolisis



Lampiran E. Data GC hasil pirolisis dan pirolisis katalitik

Merek alat : Kromatografi Gas HEWLETT PACARD 5890 SERIES II

KONDISI OPERASI

Jenis kolom : HP5

Suhu awal kolom : 100 °C

Suhu akhir kolom : 280 °C

Kenaikan suhu : 10 °C/menit

Jenis detektor : FID

Suhu detektor : 300 °C

Suhu injektor : 270 °C

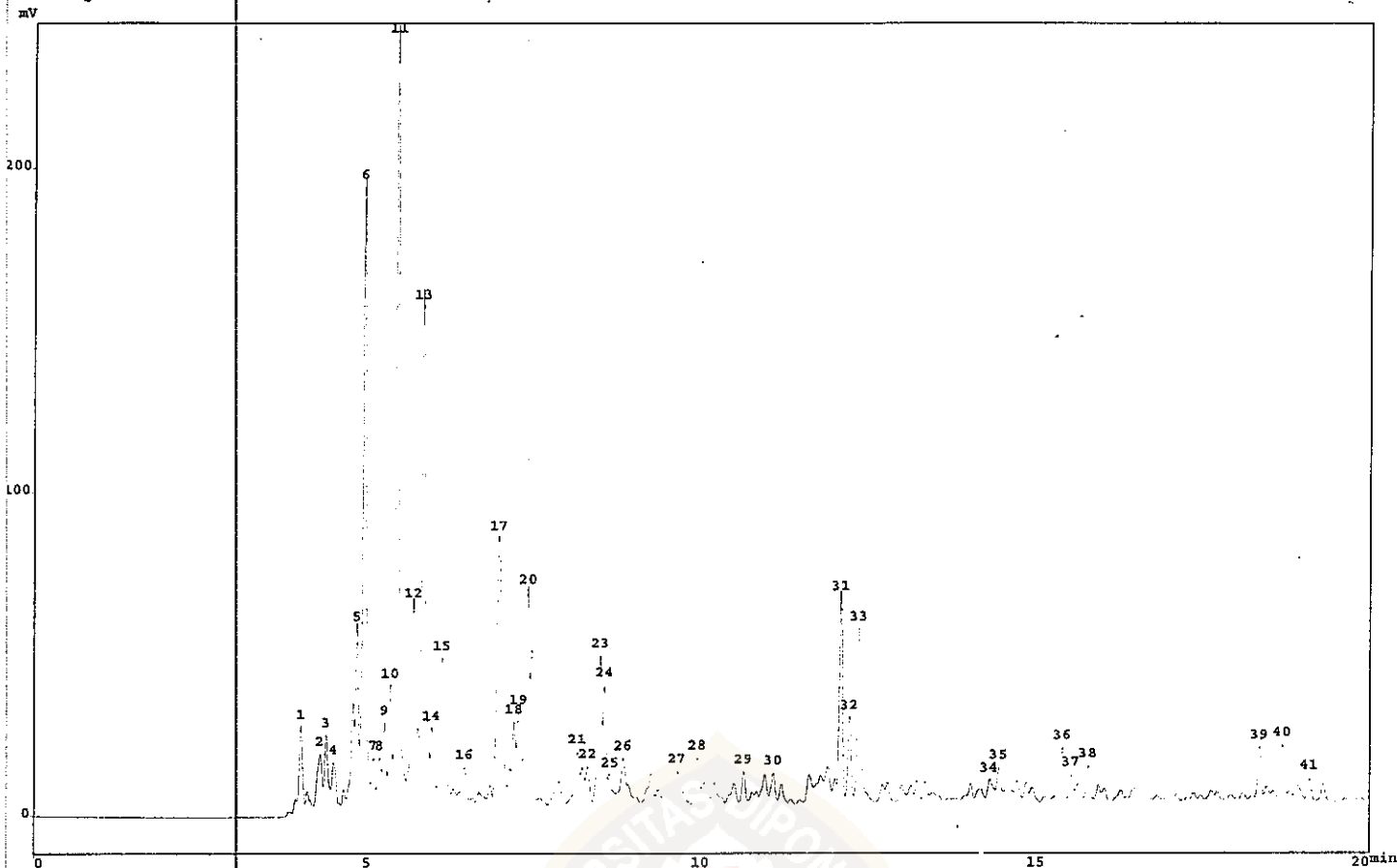
Gas pembawa : He

Jumlah injeksi : 0,1 µl



Injection Factor: 1
 Unknown
 Operator : Maryati

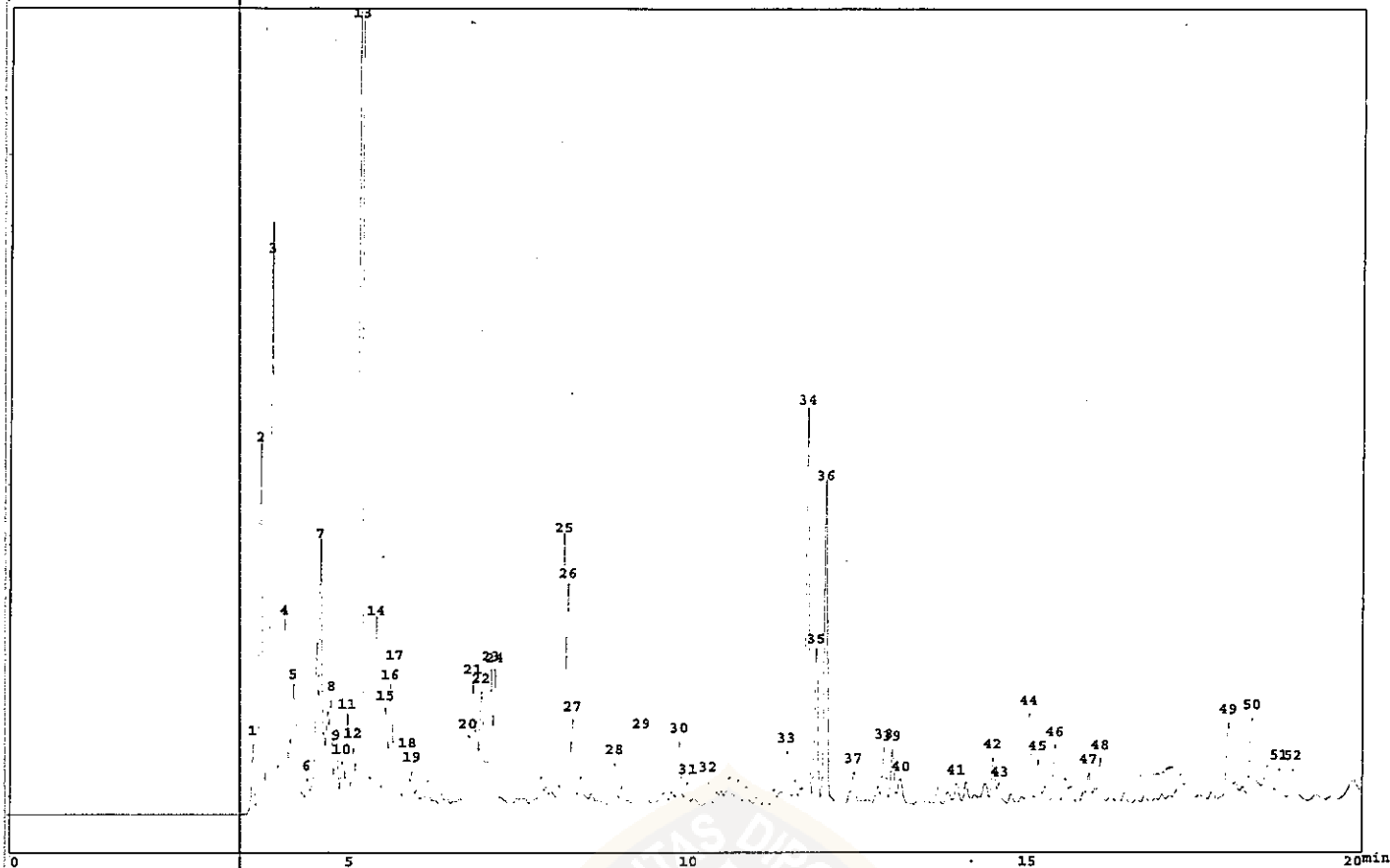
Chromatogram ***



Peak Report ***

TIME	AREA	HEIGHT	CONC
4.013	69747	24006	1.1868
4.298	78529	15946	1.3362
4.390	77311	22109	1.3155
4.503	55339	13213	0.9416
4.848	285437	55976	4.8568
4.951	649510	192458	11.0516
5.097	49715	13610	0.8459
5.183	51575	13103	0.8776
5.259	72762	24444	1.2381
5.343	108807	36224	1.8514
5.440	791186	251573	13.4623
5.686	224344	62070	3.8173
5.829	623968	156765	10.6170
5.963	71328	21496	1.2137
6.118	198100	42732	3.3707
6.457	24888	8609	0.4235
6.964	444880	80872	7.5698
7.193	102234	23652	1.7395
7.262	106131	27197	1.8059
7.402	369495	65940	6.2871
8.140	61790	14089	1.0514
8.300	68870	10284	1.1718
8.484	174194	45007	2.9640
8.550	99694	35562	1.6963
8.633	27600	7241	0.4696
8.830	74175	12433	1.2621
9.650	39847	8369	0.6780
9.953	39245	11477	0.6678
10.645	30170	9241	0.5134
11.090	26122	7625	0.4445
12.103	189805	61619	3.2296
12.235	80144	24959	1.3637
12.374	185293	51914	3.1528
14.308	26088	4704	0.4439
14.448	27196	8125	0.4627
15.385	52679	15448	0.8963
15.517	7013	6974	0.7999
15.764	35879	10206	0.6105
18.322	52695	15278	0.8966
18.667	58932	15599	1.0027
19.075	24343	6468	0.4142
5877056	1534621	100.0000	

on Factor: 1
 : Unknown
 or : yevie
 chromatogram ***



Peak Report ***

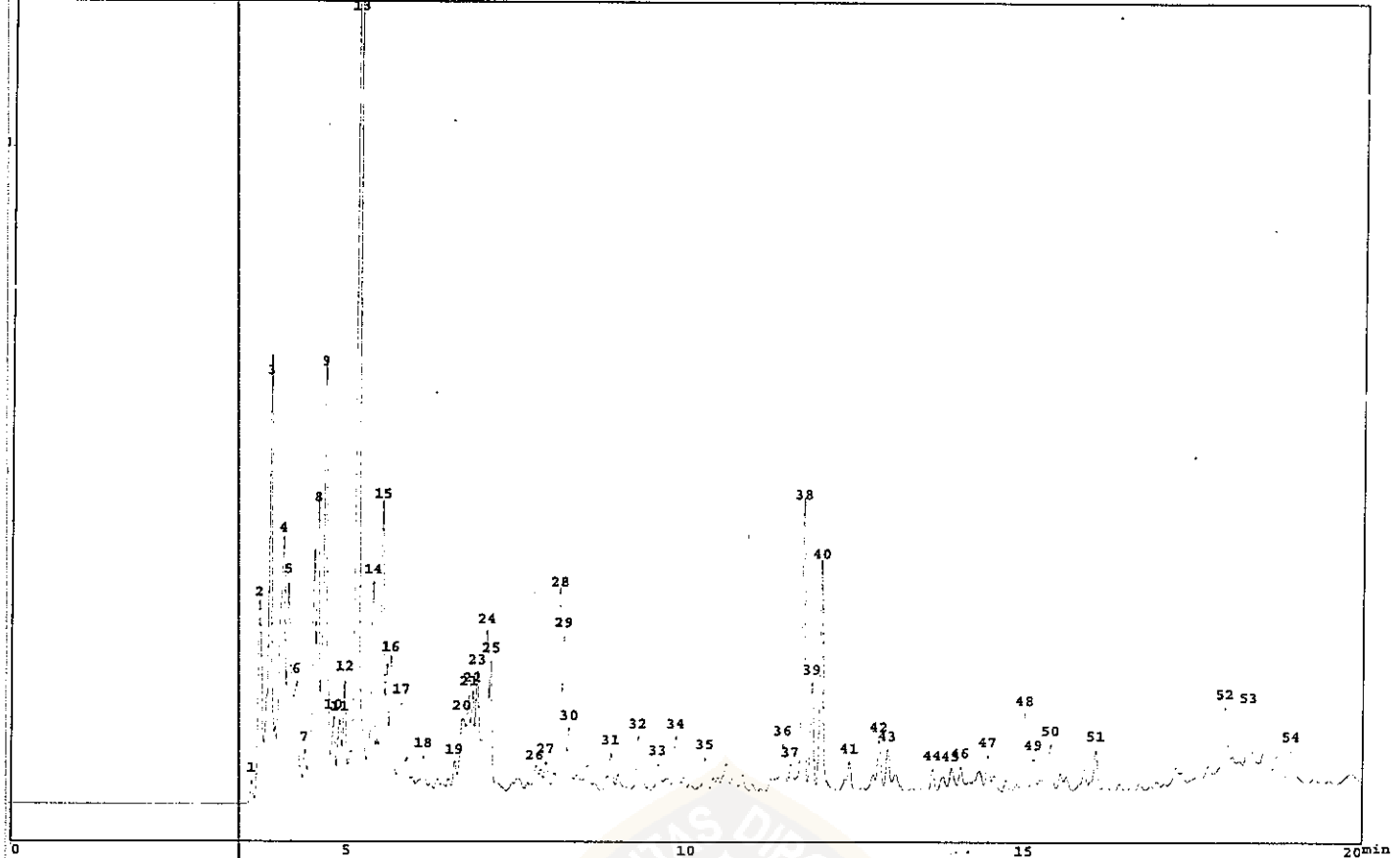
TIME	AREA	HEIGHT	CONC
3.591	55596	20238	0.7320
3.694	364119	114030	4.7944
3.854	582850	178217	7.6745
4.046	299668	97142	3.9458
4.172	262707	97127	3.4591
4.375	44089	7718	0.5805
4.565	395716	80990	5.2104
4.725	151554	30842	1.9955
4.803	62104	16351	0.8177
4.883	45127	11424	0.5942
4.963	69423	26409	0.9141
5.050	48191	15910	0.6345
5.139	1812924	672140	23.8710
5.378	185630	55148	2.4442
5.513	100324	26849	1.3210
5.587	96397	33866	1.2693
5.650	113975	38547	1.5007
5.836	40273	11650	0.5303
5.900	14169	6694	0.1866
6.725	89550	18184	1.1791
6.801	176443	35131	2.3232
6.924	128895	32089	1.6972
7.066	135025	38512	1.7779
7.124	100356	8660	1.3214
8.139	225148	78001	2.9645
8.201	179299	62918	2.3609
8.273	57669	22142	0.7593
8.894	26415	9049	0.3478
9.298	82298	19599	1.0836
9.859	50438	16814	0.6641
9.992	16116	4973	0.2122
10.291	21064	6621	0.2774
11.452	42776	12845	0.5632
11.741	358220	116352	4.7167
11.872	139024	44251	1.8305
12.011	301088	96765	3.9645
12.436	19635	7136	0.2585
12.874	46417	14186	0.6112
12.999	46759	14544	0.6157
13.133	29814	6045	0.3926
13.942	13760	4389	0.1812
14.481	41630	12018	0.5481
14.592	16069	4000	0.2116
15.018	88679	25570	1.1676
15.119	33733	10717	0.4442
15.397	59728	16508	0.7865
15.893	19909	6206	0.2621
16.063	52578	12158	0.6923
17.968	82258	20180	1.0831
18.322	96551	21513	1.2713
18.738	30952	7089	0.4076

18.952	41559	8125	0.5472

	7594688	2284578	100.0000

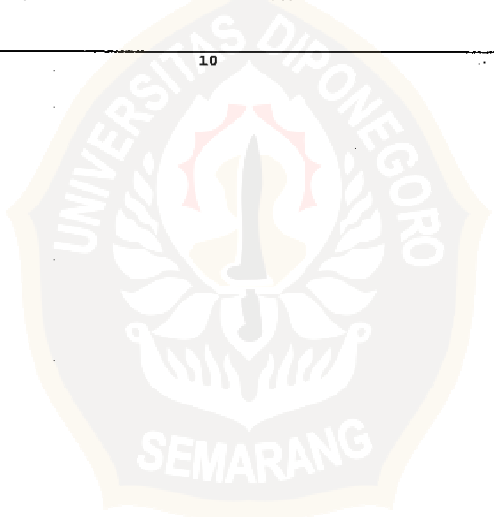
on Factor: 1
 : Unknown
 or : yevie

romatogram ***
 v



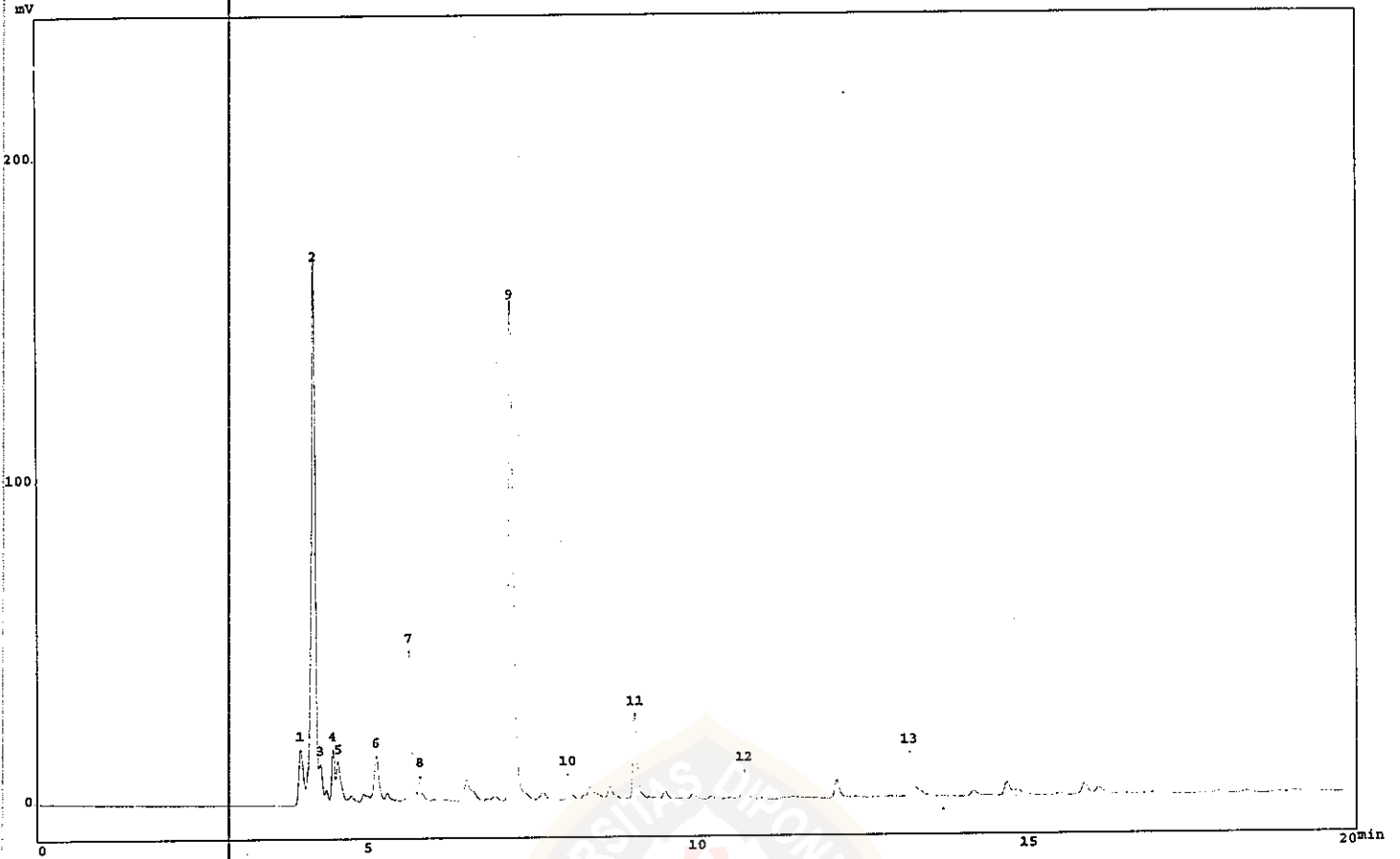
Peak Report ***

TIME	AREA	HEIGHT	CONC
3.584	18625	6869	0.2302
3.689	259215	60954	3.2033
3.846	511866	135514	6.3254
4.039	433702	79409	5.3595
4.117	286503	64890	3.5405
4.243	167144	34925	2.0655
4.370	45776	13964	0.5657
4.555	482725	90930	5.9653
4.655	515125	132671	6.3657
4.796	83731	22705	1.0347
4.881	82331	21385	1.0174
4.958	94989	32888	1.1738
5.129	1683569	593573	20.8048
5.367	217687	61460	2.6901
5.507	411925	85706	5.0904
5.638	119744	38093	1.4797
5.800	132227	23428	1.6340
6.122	24979	8428	0.3087
6.583	26455	6820	0.3269
6.692	116913	19832	1.4448
6.792	80250	27153	0.9917
6.842	81942	28298	1.0126
6.912	128821	34224	1.5919
7.051	176142	46376	2.1767
7.117	101043	36532	1.2486
7.767	39210	4879	0.4845
7.930	23834	6982	0.2945
8.122	181372	59103	2.2413
8.183	126552	43705	1.5639
8.267	43453	15447	0.5370
8.877	25338	8637	0.3131
9.280	73271	15897	0.9054
9.578	23667	6631	0.2925
9.837	47092	14586	0.5819
10.269	28624	9242	0.3537
11.428	39770	10886	0.4915
11.542	21064	4634	0.2603
11.719	265674	86245	3.2831
11.851	95667	30290	1.1822
11.989	225696	68226	2.7891
12.415	17324	6539	0.2141
12.852	41176	12889	0.5088
12.979	32589	10852	0.4027
13.647	21018	6503	0.2597
13.527	22164	4972	0.2739
14.062	17317	6626	0.2140
14.461	25288	8516	0.3125
14.996	79155	22478	0.9782
15.127	75584	8198	0.3162
15.376	48256	18314	0.5963
16.042	37250	10685	0.4603
17.946	69181	16965	0.8549
18.300	69453	15473	0.8583
18.931	42756	8223	0.5284



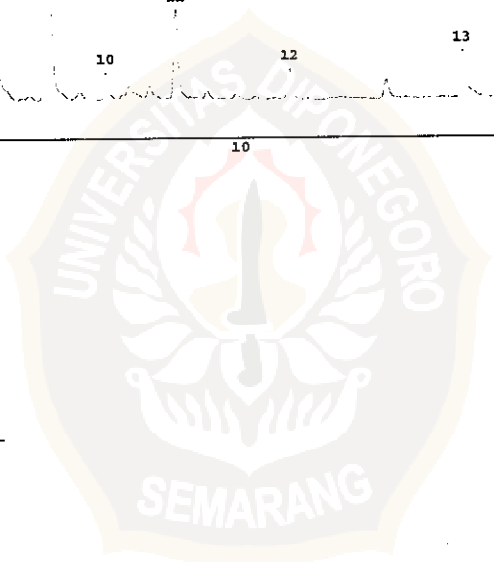
tion Factor: 1
: Unknown
ator : Maryati

Chromatogram ***



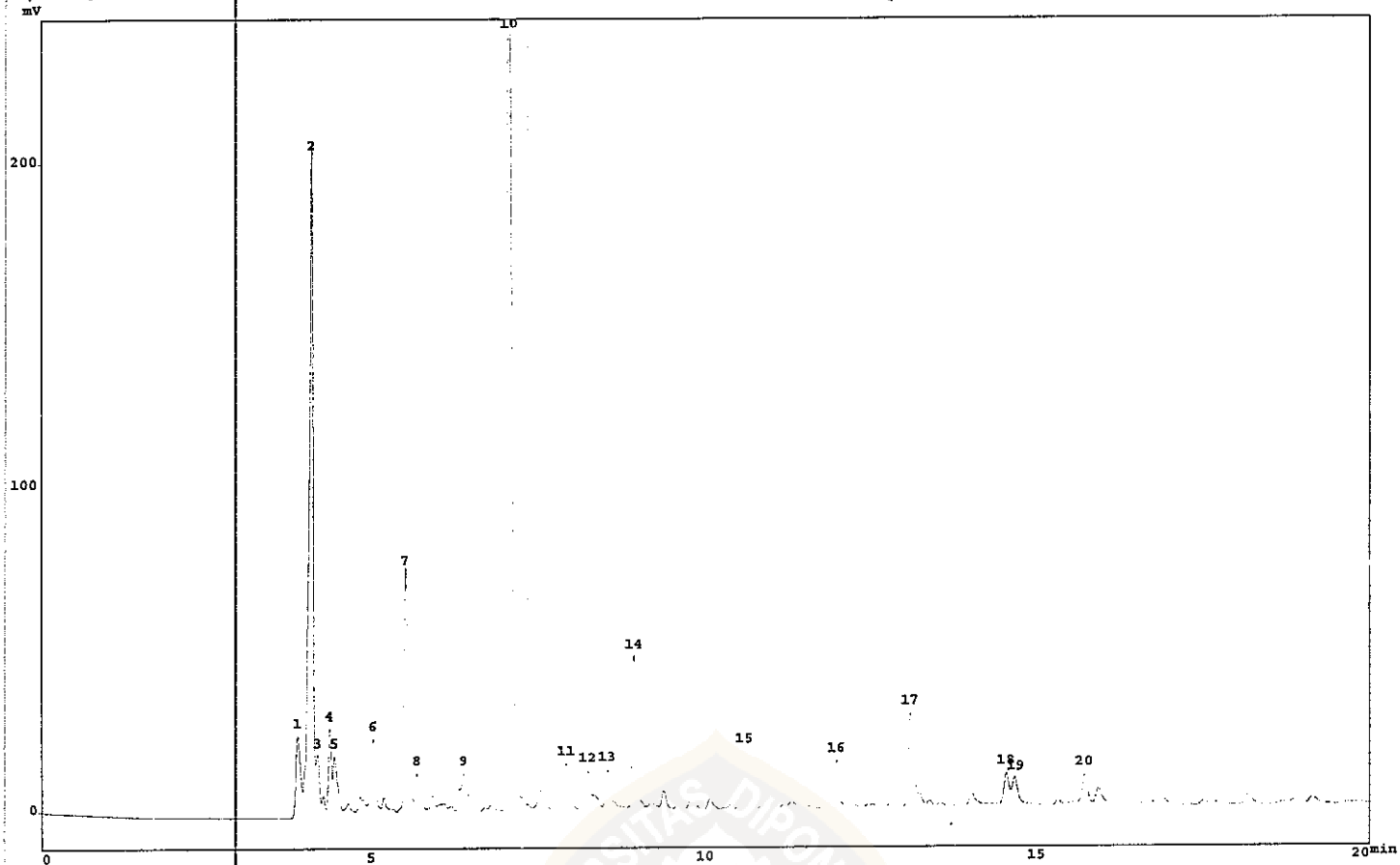
Peak Report ***

0	TIME	AREA	HEIGHT	CONC
1	3.973	82455	17255	3.6881
2	4.185	708336	171629	31.6835
3	4.283	42627	11739	1.9067
4	4.466	62230	16193	2.7835
5	4.550	54710	11701	2.4471
6	5.121	59770	13139	2.6735
7	5.616	186891	46751	8.3595
8	5.784	24304	7017	1.0871
9	7.164	771596	155082	34.5130
0	8.029	32564	7695	1.4565
1	9.047	107696	26222	4.8172
2	10.719	37301	8547	1.6685
3	13.222	65187	13096	2.9158
-----		2235666	506115	100.0000



ution Factor: 1
 a : Unknown
 rator : Maryati

Chromatogram ***

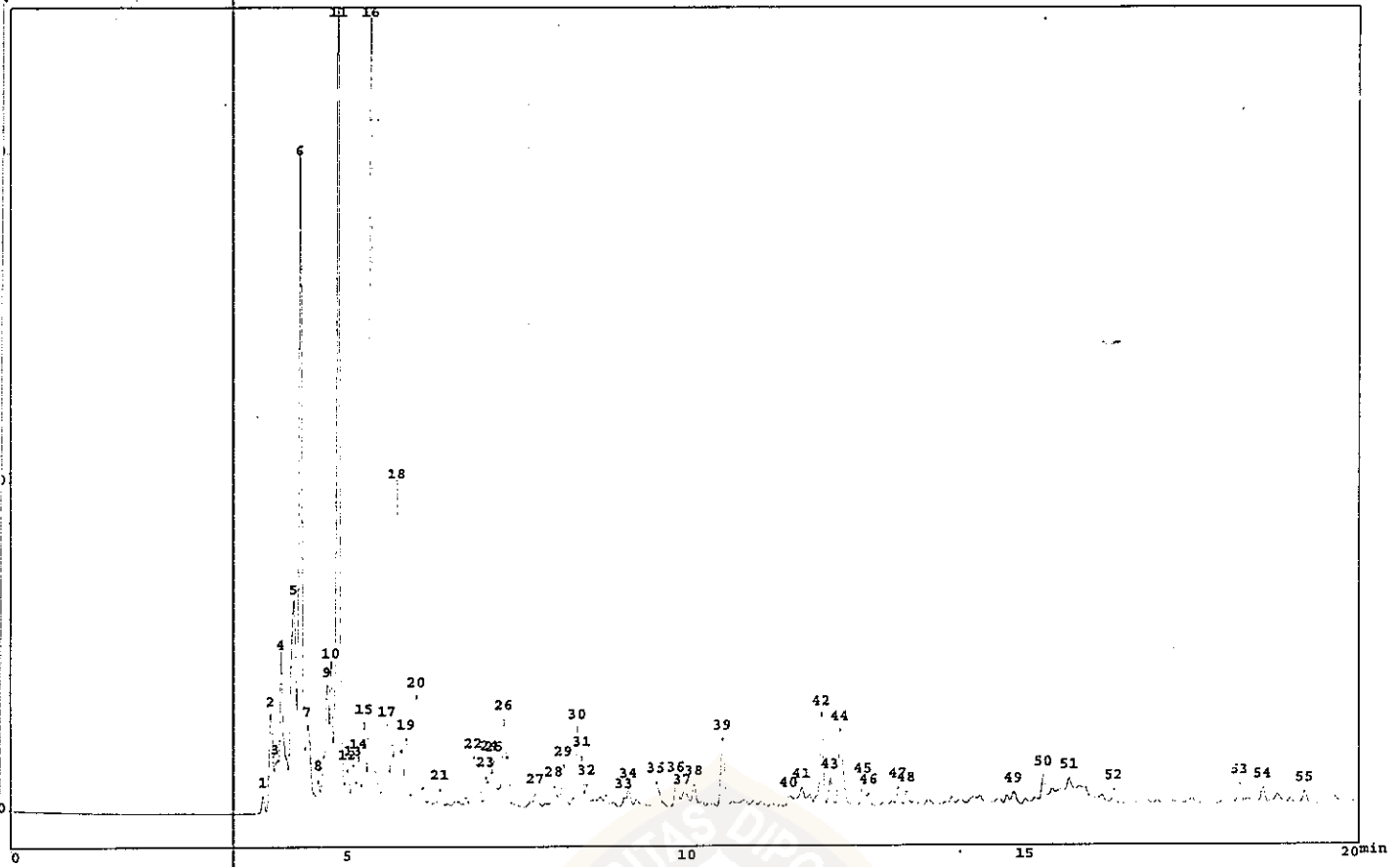


Peak Report ***

NO	TIME	AREA	HEIGHT	CONC
1	3.890	118830	24917	3.1653
2	4.101	856966	207608	22.8271
3	4.201	65872	17454	1.7546
4	4.376	95442	25795	2.5423
5	4.447	76144	17048	2.0283
6	5.023	88135	20860	2.3477
7	5.511	285029	74464	7.5924
8	5.677	32254	10133	0.8592
9	6.386	47764	8269	1.2723
10	7.056	1364145	284812	36.3169
11	7.910	58317	13818	1.5534
12	8.236	30997	8422	0.8257
13	8.532	47101	10688	1.2546
14	8.927	198571	47239	5.2095
15	10.595	70701	17135	1.8833
16	11.996	61537	14035	1.6392
17	13.100	131168	26945	3.4939
18	14.548	46381	8962	1.2354
19	14.692	40580	6979	1.0809
20	15.713	41229	8259	1.0982
		3754162	853843	100.0000

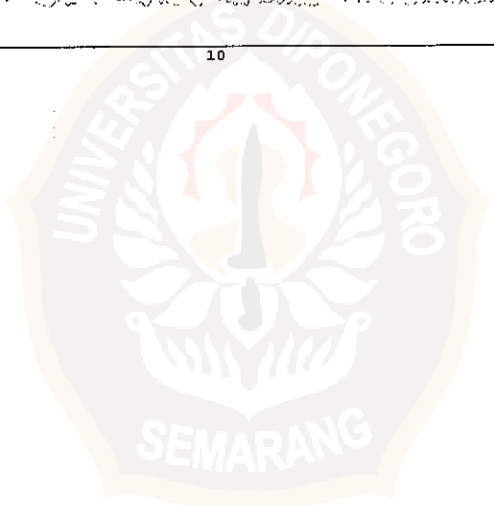
Injection Factor: 1
 : Unknown
 Operator: Maryati

Chromatogram ***



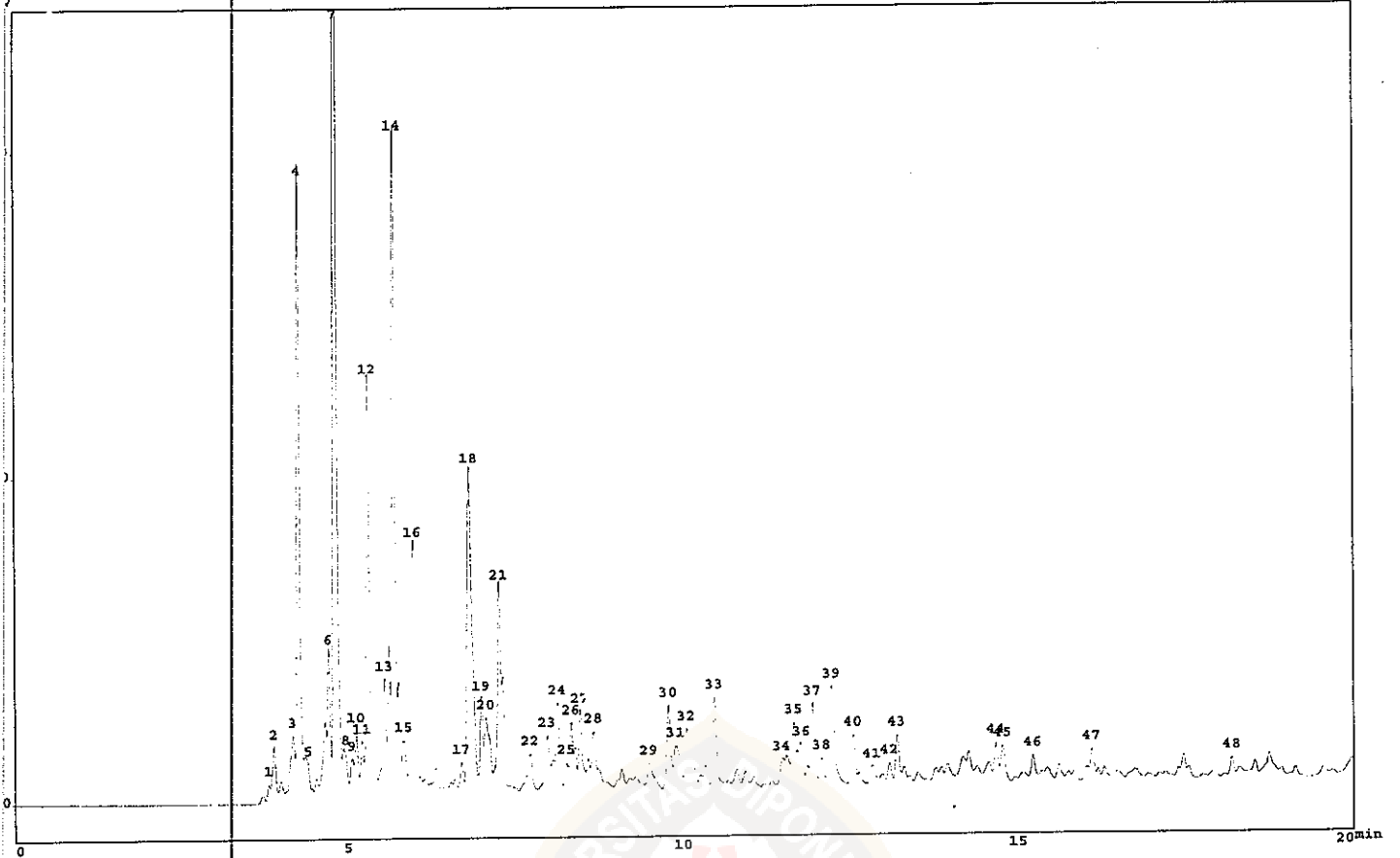
Peak Report ***

TIME	AREA	HEIGHT	CONC
3.747	28738	10177	0.2559
3.863	236332	59189	2.1042
3.942	70776	28944	0.6302
4.020	468898	96718	4.1750
4.205	675546	127265	6.0149
4.299	1253767	401431	11.1632
4.411	262472	51042	2.3370
4.567	54581	17387	0.4860
4.699	332318	74842	2.9589
4.755	230890	88831	2.0558
4.856	1736649	536766	15.4627
5.000	86637	22805	0.7714
5.085	101010	25305	0.8994
5.164	92506	30127	0.8237
5.249	159129	50701	1.4168
5.344	1598950	565297	14.2367
5.588	194029	49501	1.7276
5.731	807093	198613	7.1862
5.865	121102	39506	1.0783
6.013	353988	64862	3.1518
6.358	24773	8412	0.2206
6.855	186980	27796	1.6648
7.033	52078	16281	0.4637
7.092	77050	26540	0.6860
7.158	92368	25843	0.8224
7.300	272627	50989	2.4274
7.766	22756	6171	0.2026
8.039	45401	10752	0.4042
8.179	101996	23727	0.9081
8.382	158210	46211	1.4087
8.450	70628	27942	0.6289
8.525	26375	10122	0.2348
9.075	17277	4847	0.1538
9.141	33415	10827	0.2975
9.549	71709	14249	0.6385
9.845	60493	15087	0.5386
9.942	47657	6876	0.4243
10.105	37112	11514	0.3304
10.528	157799	40493	1.4050
11.508	34020	4511	0.3029
11.700	25745	7065	0.2292
11.994	166699	52899	1.4843
12.126	46976	14751	0.4183
12.270	199054	45202	1.7723
12.613	53410	13471	0.4755
12.700	20435	6697	0.1820
13.132	30266	9668	0.2695
13.254	23400	7279	0.2084
14.835	23162	5640	0.2062
15.274	44560	13213	0.3968
15.653	35095	8715	0.2234
16.316	24740	7533	0.2203
18.205	35984	10671	0.3204
18.552	29866	8144	0.2659
19.174	25701	6806	0.2288
11.231226	3144494	100.0000	



Injection Factor: 1
 : Unknown
 Operator: Maryati

Chromatogram ***

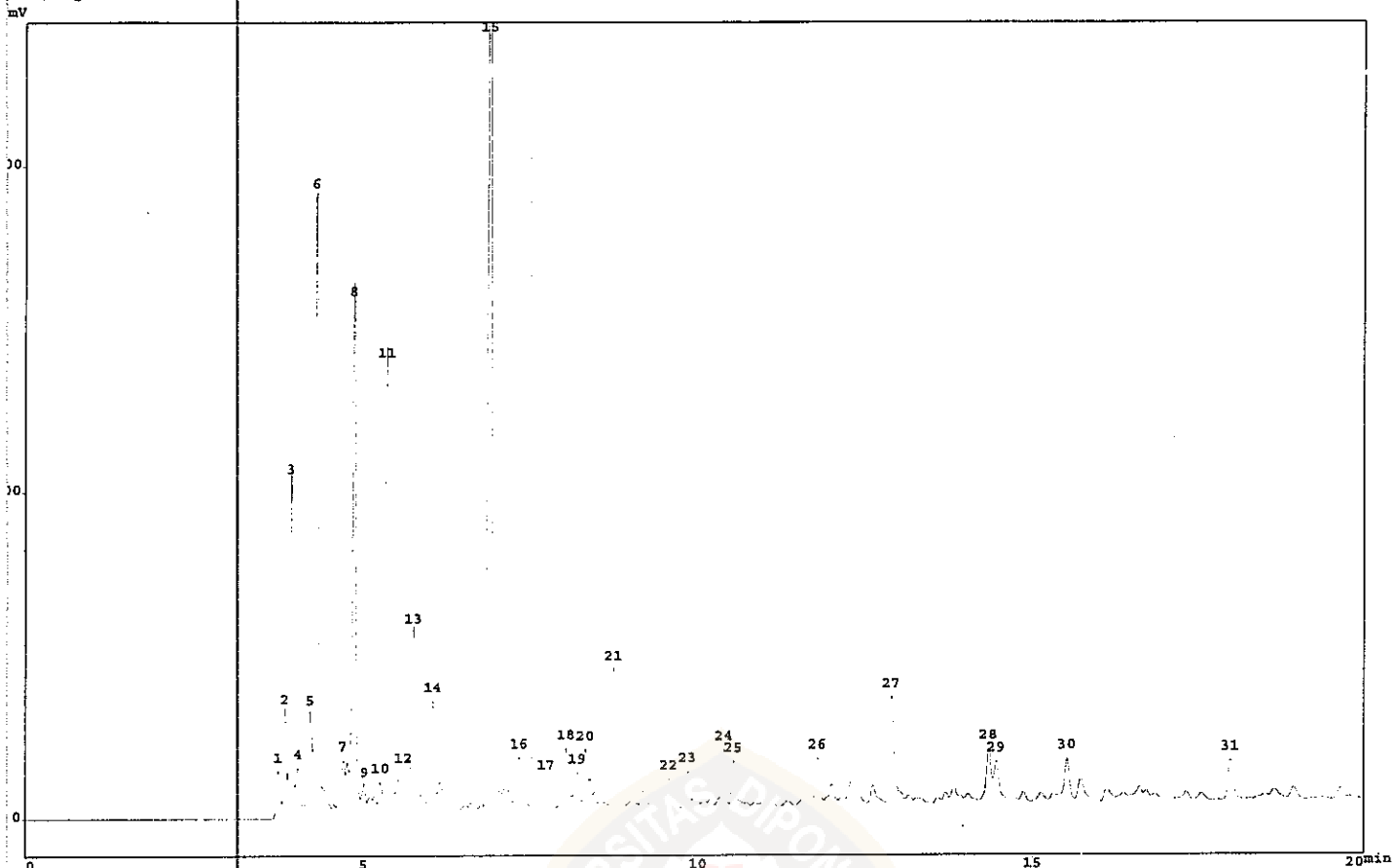


Peak Report ***

TIME	AREA	HEIGHT	CONC
3.817	12824	4355	0.1870
3.896	48198	15517	0.7029
4.177	77362	17435	1.1282
4.265	554621	192681	8.0883
4.408	45101	7828	0.6577
4.715	211921	43563	3.0906
4.816	1468470	491875	21.4154
4.967	51227	10606	0.7471
5.058	30554	8439	0.4456
5.120	47717	18053	0.6959
5.205	40860	14028	0.5959
5.299	403782	126633	5.8886
5.543	109136	32468	1.5916
5.685	814684	201890	11.8809
5.827	20222	8188	0.2949
5.970	305236	73481	4.4514
6.685	22567	8025	0.3291
6.802	509056	98487	7.4238
6.981	83887	28202	1.2234
7.048	115691	21608	1.6872
7.246	309438	63216	4.5127
7.710	29597	9001	0.4316
7.969	65402	15567	0.9538
8.123	120399	25867	1.7558
8.258	23245	6829	0.3390
8.327	85205	18900	1.2426
8.461	65100	21563	0.9494
8.663	53380	12765	0.7785
9.492	31015	6691	0.4523
9.785	91864	24117	1.3397
9.895	61708	10901	0.8999
10.053	48264	15552	0.7039
10.466	104140	26753	1.5187
11.467	80806	7811	1.1784
11.650	77337	19205	1.1278
11.767	65600	12247	0.9567
11.936	105989	25200	1.5457
12.070	30672	7862	0.4473
12.223	158844	29799	2.3165
12.547	53338	13949	0.7779
12.825	34048	4989	0.4965
13.084	15138	4947	0.2051
13.199	39853	12846	0.5812
14.676	32623	9951	0.4758
14.773	41767	10087	0.6091
15.216	21944	6405	0.3200
16.081	19719	6690	0.2876
18.147	17226	5306	0.2512
6857078	1858367	100.0000	

ion Factor: 1
 : Unknown
 tor : Maryati

Chromatogram ***



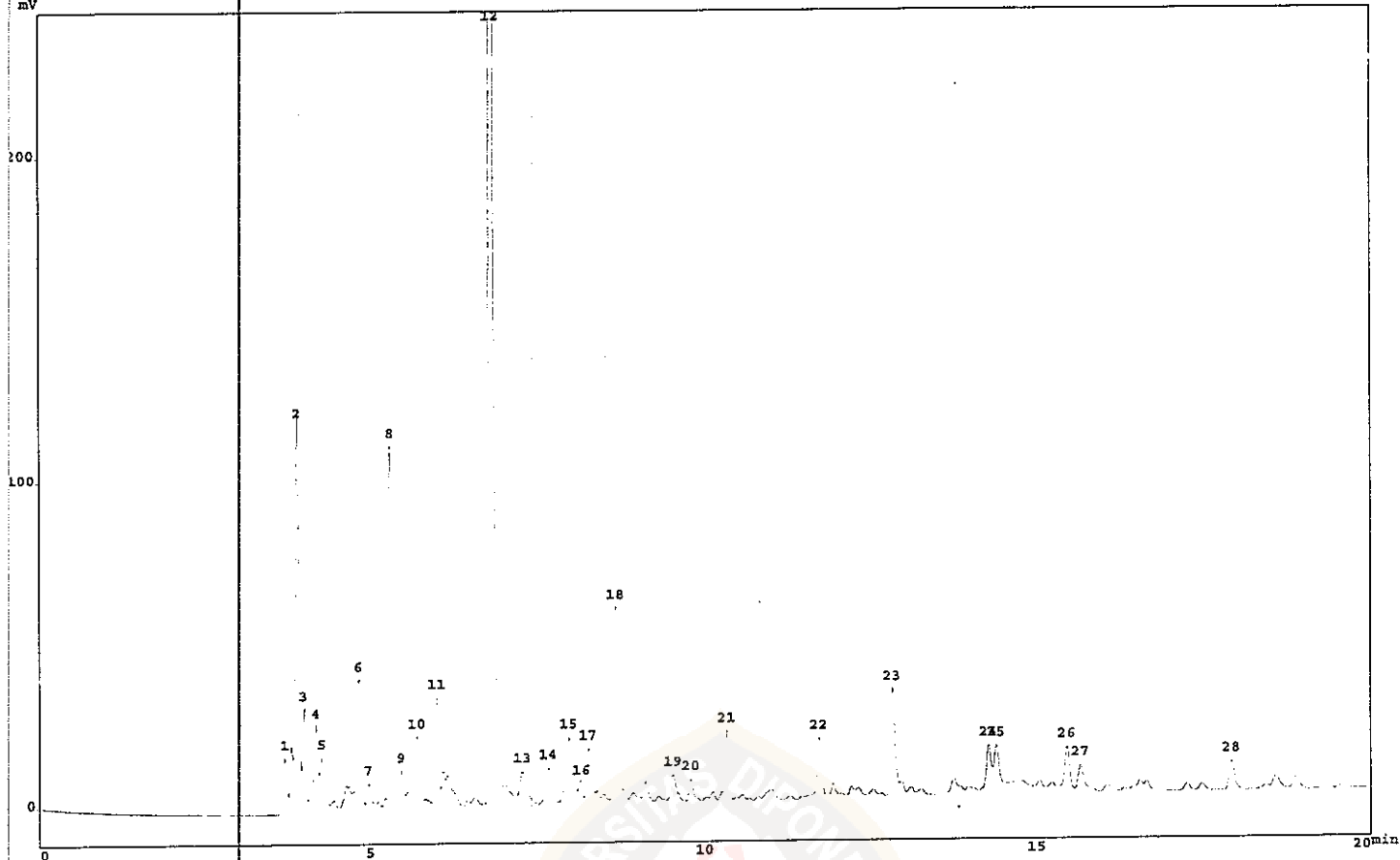
Peak Report ***

TIME	AREA	HEIGHT	CONC
3.745	56953	14673	1.1169
3.844	95957	33560	1.8819
3.937	332052	106580	6.5128
4.042	52338	14216	1.0264
4.213	121368	31270	2.3802
4.300	617643	189534	12.1129
4.700	107978	14352	2.1176
4.855	502462	160048	9.8540
5.017	17987	5197	0.3527
5.250	18047	6672	0.3539
5.337	450964	139765	8.8441
5.583	51792	8615	1.0157
5.728	209301	52624	4.1047
6.025	116131	28848	2.2775
6.853	1241532	308223	24.3482
7.303	73522	14313	1.4419
7.717	45750	8765	0.8972
8.013	73276	17582	1.4370
8.181	41897	9581	0.8217
8.304	70538	15833	1.3833
8.723	170644	42494	3.3466
9.560	51306	8870	1.0062
9.845	40615	10225	0.7965
10.389	58859	16181	1.1543
10.531	47231	13017	0.9263
11.791	50773	12763	0.9957
12.902	137752	31579	2.7015
14.347	69654	15269	1.3660
14.463	56174	11277	1.1016
15.509	52807	11764	1.0356
17.953	65725	12252	1.2890

5099065 1365944 100.0000

Injection Factor: 1
 Injector : Unknown
 Operator : Maryati

Chromatogram ***
 mV

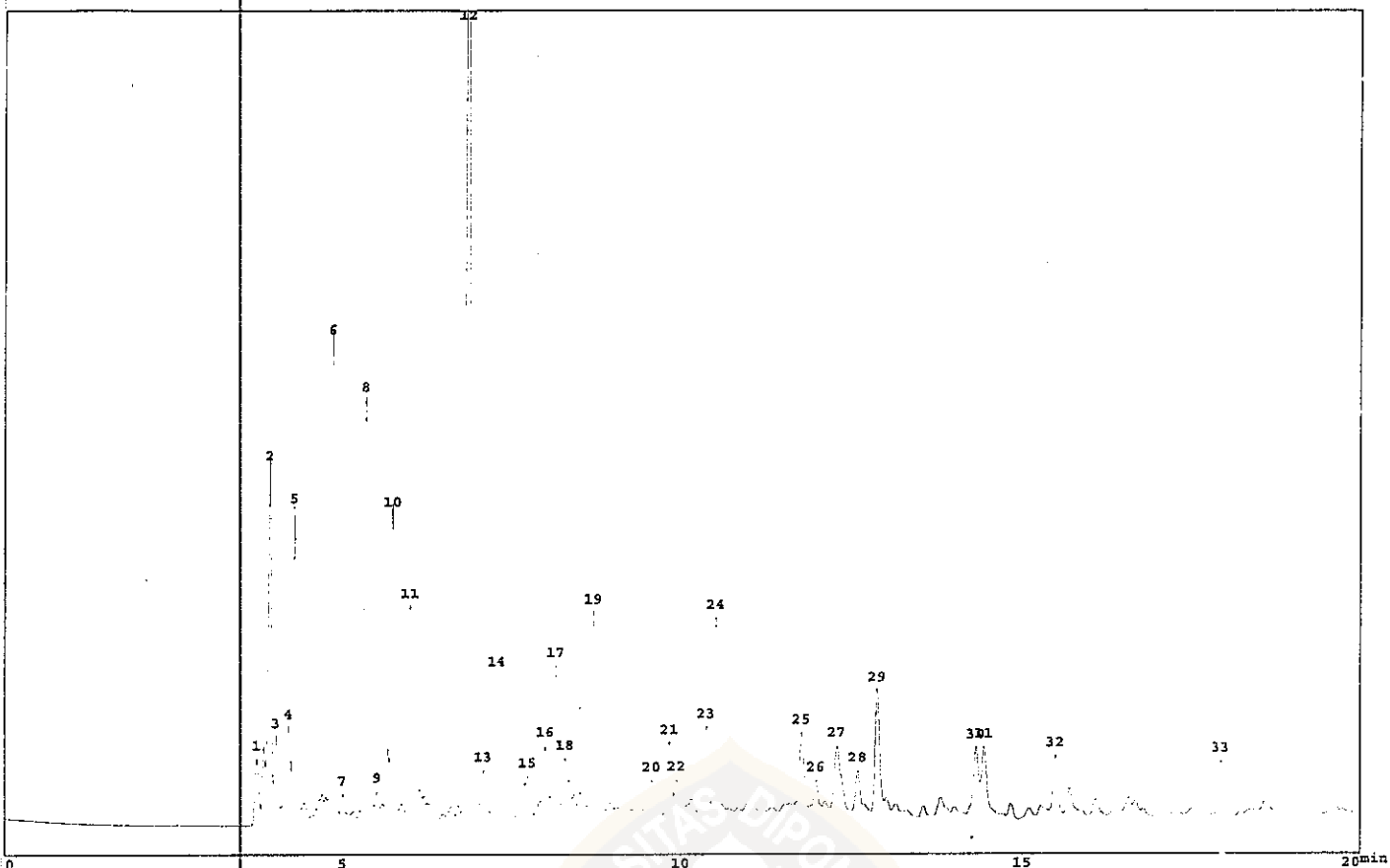


Peak Report ***

TIME	AREA	HEIGHT	CONC
3.718	70121	16940	1.5315
3.913	475660	123789	10.3888
4.009	106390	31568	2.3237
4.188	109270	25813	2.3865
4.275	69320	14856	1.5140
4.826	121911	37080	2.6626
4.974	18138	5968	0.3961
5.300	398520	109244	8.7040
5.465	30070	9135	0.6567
5.696	85384	20139	1.8649
6.000	95504	30293	2.0859
6.824	1887200	450884	41.2180
7.286	39546	7646	0.8637
7.671	41812	10209	0.9132
7.975	99342	19591	2.1697
8.167	27759	4520	0.6063
8.268	63578	14879	1.3886
8.676	214528	58711	4.6855
9.527	46116	7882	1.0072
9.793	25565	6334	0.5584
10.336	78144	20659	1.7067
11.731	72351	17807	1.5802
12.838	140119	32082	3.0603
14.281	61035	13077	1.3331
14.398	59577	12256	1.3012
15.441	58196	12554	1.2710
15.639	35256	7205	0.7700
17.879	48176	8830	1.0522
4578586	1129953	100.0000	

n Factor: 1
 : Unknown
 r : Maryati

omatogram ***



k Report ***

TIME	AREA	HEIGHT	CONC
3.743	78677	19832	1.2912
3.935	429956	109872	7.0563
4.032	85861	24949	1.4091
4.213	34795	25937	1.5557
4.299	292177	92250	4.7951
4.856	421066	145615	6.9104
5.003	16147	5936	0.2650
5.334	432976	125705	7.1059
5.508	20481	5016	0.3361
5.729	350531	98092	5.7528
5.986	282986	62562	4.6443
6.856	1424201	331461	23.3735
7.101	52837	13133	0.8671
7.299	216841	42265	3.5587
7.759	58119	10558	0.9538
8.017	68968	17676	1.1319
8.173	161586	43219	2.6519
8.306	64410	18939	1.0571
8.718	253129	60013	4.1543
9.577	62285	9719	1.0222
9.837	87748	21650	1.4401
9.945	41280	9011	0.6775
10.378	88307	24048	1.4493
10.516	225150	57739	3.6951
11.774	90728	22250	1.4890
11.984	25276	7692	0.4148
12.292	127962	19159	2.1001
12.597	49243	11686	0.8082
12.881	138429	38885	2.2719
14.322	90846	19136	1.4909
14.438	93259	19329	1.5305
15.480	78765	17419	1.2927
17.917	88215	15265	1.4477
6093235	1535015		100.0000

**Lampiran F. Data GC–MS hasil pirolisis campuran plastik–tempurung kelapa
pada perbandingan massa 1:1.**

Merek alat: GC–MS SHIMADZU QP–5000

KONDISI OPERASI

Jenis pengion : Electron Impact

Jenis kolom : CBP20

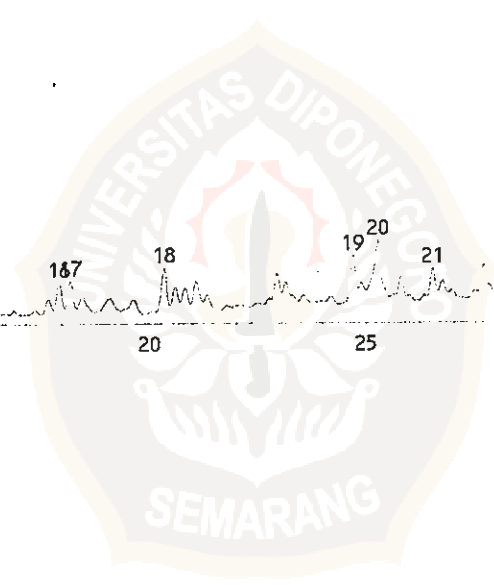
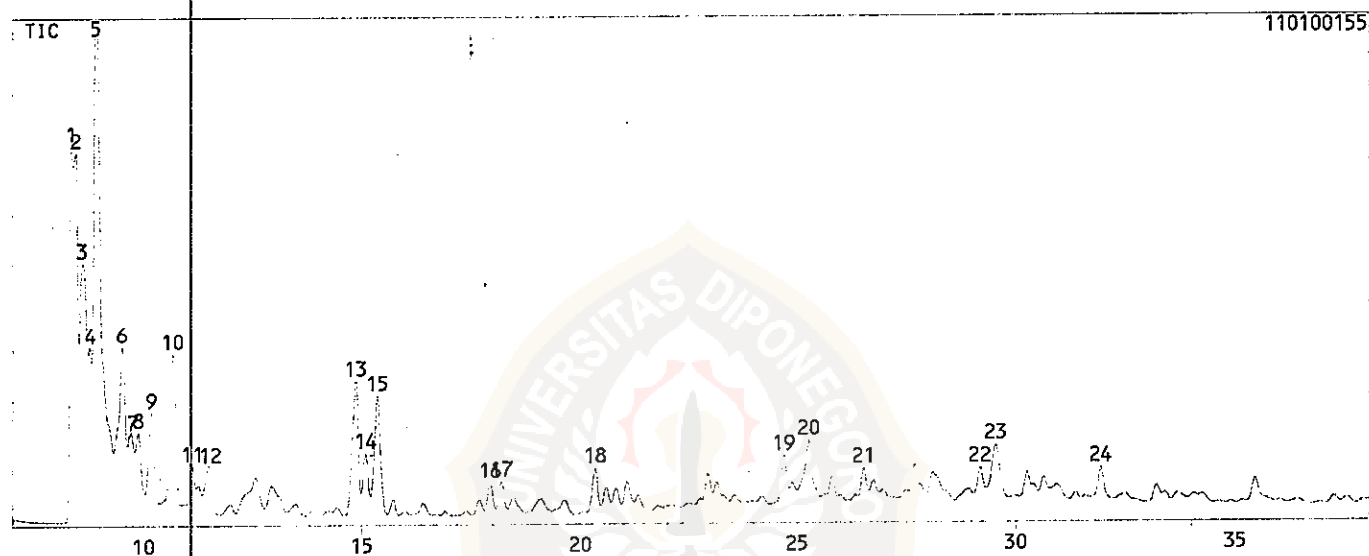
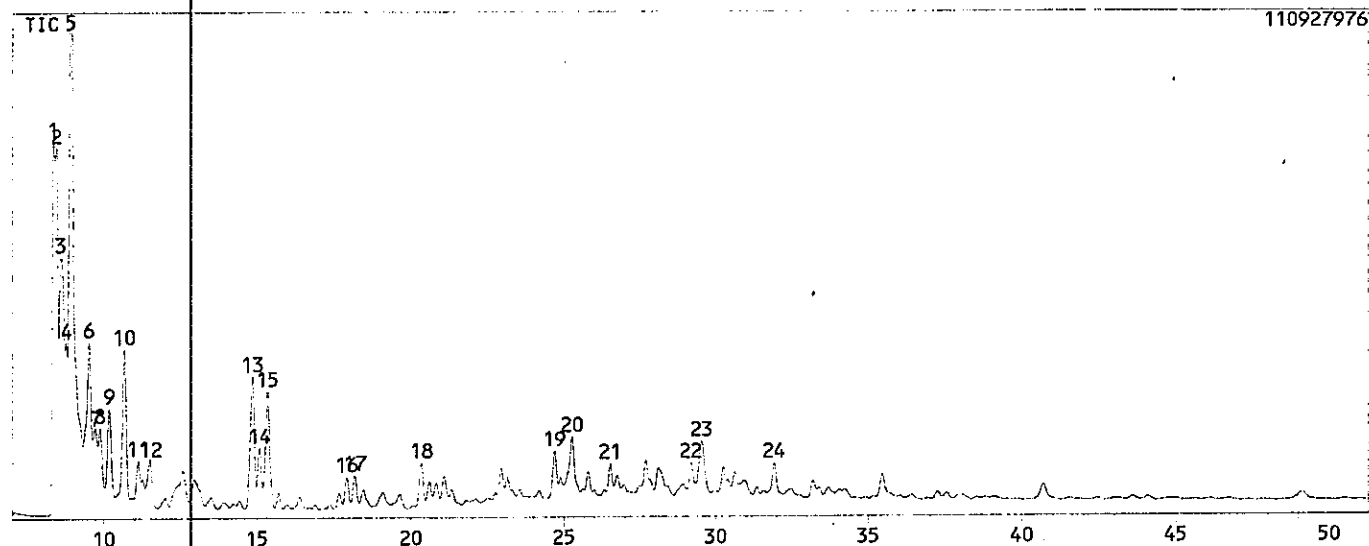
Panjang kolom : 50 m

Suhu kolom : 100 °C s.d. 230 °C

Gas pembawa : He

Suhu detektor : 250 °C





Sample : PNKPT 1:1A, RUSENO
 ID :
 Sample Amount : 1
 Dilution Factor : 1
 Type : Unknown
 Operator : Yohandri-Bustom
 Method File Name : UNDIP.MET
 Vial No. : 1
 Barcode :

**** Peak Report ****

PKNO	R.Time	I.Time - F.Time	Area	Height	A/(sec)	MK	%Total	Name
1	8.356	8.242 - 8.408	457334538	81402542	5.618		6.97	
2	8.461	8.408 - 8.542	529934808	79898749	6.653	V	8.08	
3	8.606	8.542 - 8.750	603788720	56046619	10.773	V	9.21	
4	8.800	8.750 - 8.825	164096486	36901002	4.447	V	2.50	
5	8.927	8.825 - 9.317	1429200630	109805269	13.016	V	21.79	
6	9.522	9.317 - 9.642	462548692	37450846	12.351	V	7.05	
7	9.750	9.642 - 9.808	171466395	17984417	9.534	V	2.61	
8	9.884	9.808 - 10.033	175743701	18666563	9.415	V	2.68	
9	10.183	10.033 - 10.350	232250979	22871458	10.155	V	3.54	
10	10.672	10.350 - 10.850	370431549	35582698	10.410	V	5.65	
11	11.121	10.850 - 11.217	126758228	11081094	11.439	V	1.93	
12	11.533	11.217 - 11.675	180074370	10341219	17.413	V	2.75	
13	14.865	11.675 - 14.983	687960543	28674888	23.992	V	10.49	
14	15.092	14.983 - 15.200	110104979	12990328	8.476	V	1.68	
15	15.356	15.200 - 15.558	244363237	25317592	9.652	V	3.73	
16	17.928	15.558 - 18.058	38747782	5698871	6.799		0.59	
17	18.188	18.058 - 18.317	42707996	5887827	7.254	V	0.65	
18	20.343	20.225 - 20.475	61383419	8221563	7.466		0.94	
19	24.698	24.575 - 24.817	74105882	9207205	8.049		1.13	
20	25.268	24.817 - 25.517	175068126	12184283	14.368	V	2.67	
21	26.521	26.442 - 26.642	31389056	5089463	6.167		0.48	
22	29.183	29.117 - 29.433	40205093	4249769	9.461		0.61	
23	29.542	29.433 - 29.783	115570893	10396642	11.116	V	1.76	
24	31.925	31.850 - 32.083	33824813	5043054	6.707		0.52	

Total

5559060512

100.00

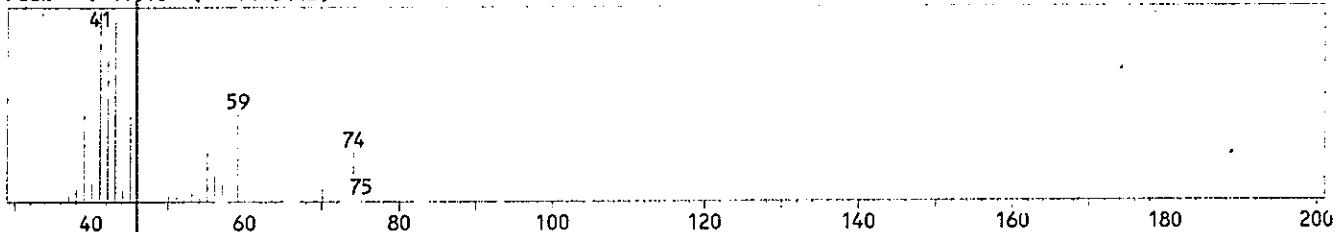


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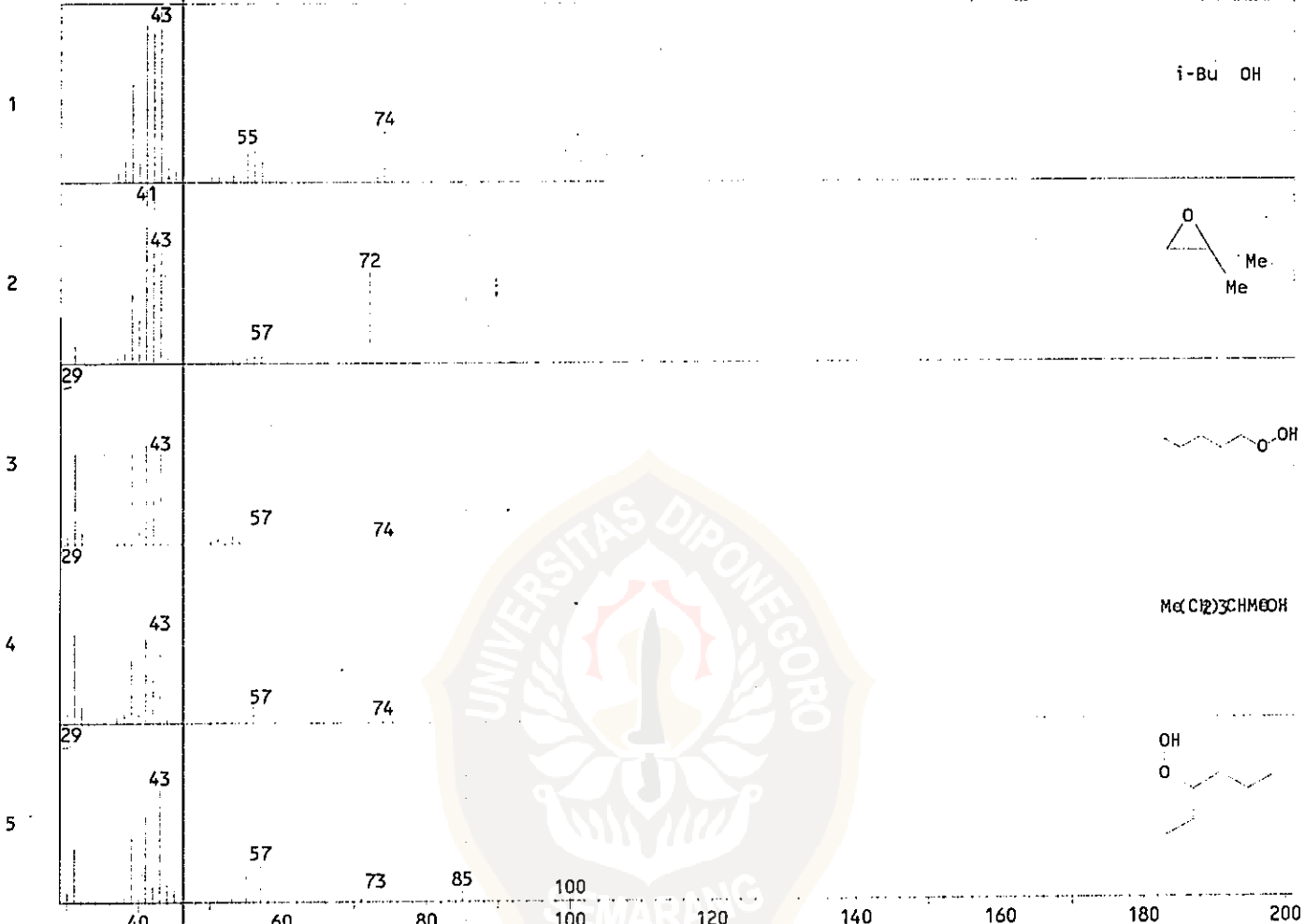
Data : PNKPT11A.D03

Mass Peak # : 29 Ret. Time : 0.292
Scan # : 156 B.G. Scan # : 145
Base Peak : 41.10 (7075143)

49



<Hit List>



No	SI	Mol.Wgt.	Mol.Form./Compound Name	CAS No.	Entry	LIB#
1	92	74	C ₄ H ₁₀ O ISO BUTYL ALCOHOL \$\$ ISO BUTANOL \$\$	78-83-1	1556	3
2	85	72	C ₄ H ₈ O Oxirane, 2,2-dimethyl- (CAS) Isobutylene oxide \$\$ OXIRANE, 1,1-DIMETHYL- \$\$ 1,2-Epoxy	558-30-5	1222	3
3	85	118	C ₆ H ₁₄ O ₂ Hydroperoxide, 1-methylpentyl \$\$ 2-Hexyl hydroperoxide \$\$ 1-Methylpentyl hydroperoxid	24254-55-5	3531	2
4	85	118	C ₆ H ₁₄ O ₂ Hydroperoxide, 1-methylpentyl (CAS) 2-Hexyl hydroperoxide \$\$	24254-55-5	11037	3
5	84	118	C ₆ H ₁₄ O ₂ Hydroperoxide, 1-ethylbutyl \$\$ 3-Hexyl hydroperoxide \$\$ 1-Ethylbutyl hydroperoxide	24254-56-6	3535	2

Library Name

(1) NIST12.LIB (2) NIST62.LIB (3) WILEY229.LIB

<Unknown Spectrum>

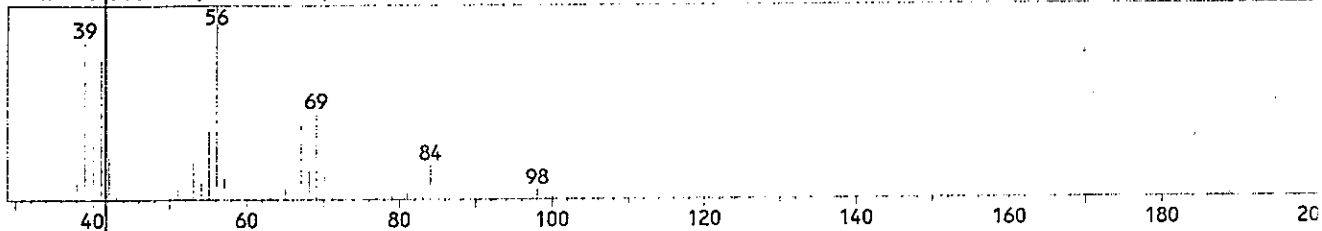
Data : PNKPT11A.D03

Mass Peak # : 39 Ret. Time : 8.483

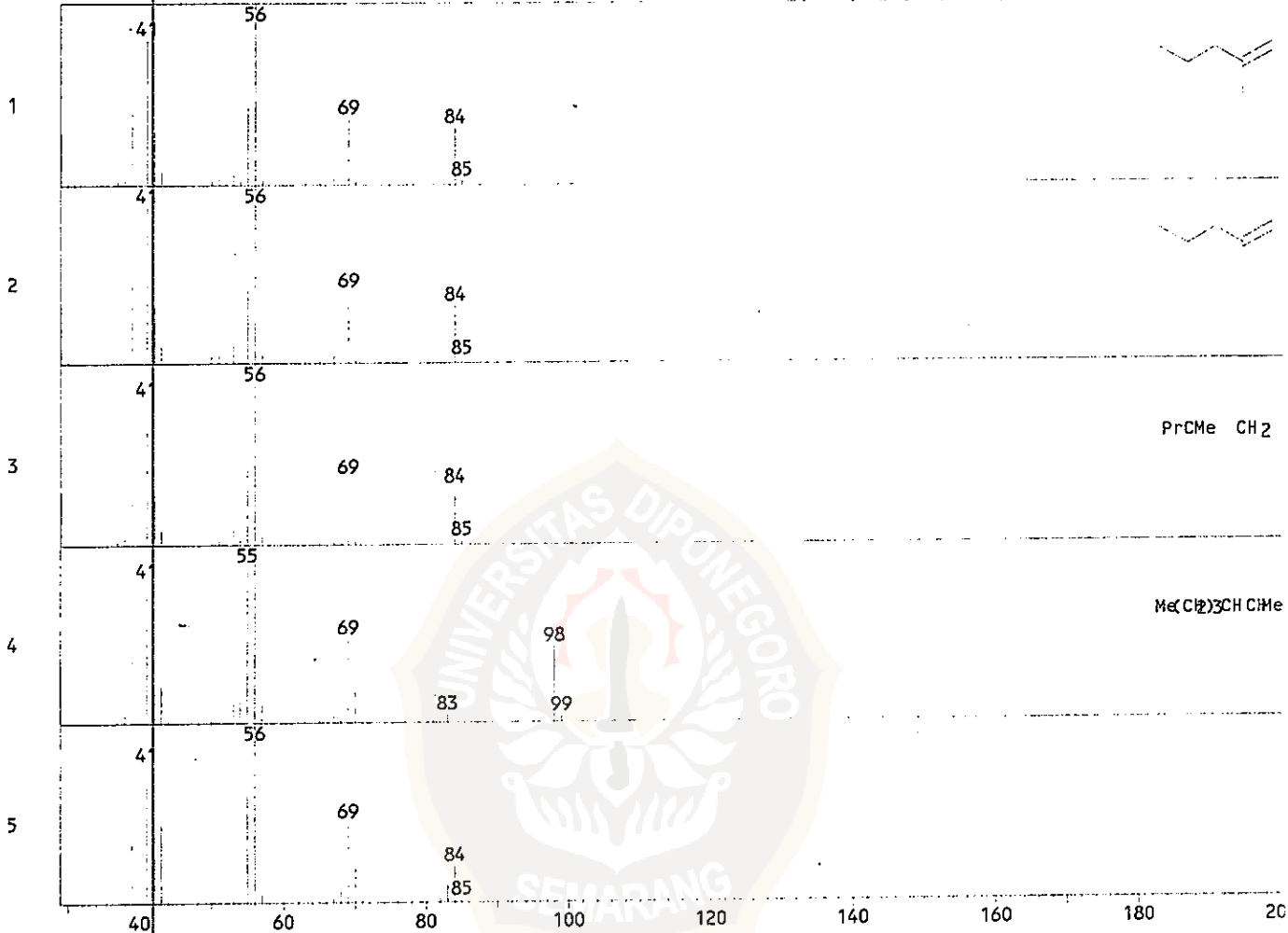
Scan # : 179 B.G. Scan # : 169

Base Peak : 56.10 (2068314)

50



<Hit List>



No	SI	Mol. Wgt.	Mol. Form./Compound Name	CAS No.	Entry	LIB#
1	87	84	C ₆ H ₁₂ 1-Pentene, 2-methyl-	763-29-1	533	1
2	86	84	C ₆ H ₁₂ 1-Pentene, 2-methyl- \$\$ 2-Methyl-1-pentene \$\$ 4-Methyl-4-pentene \$\$ C ₂ H ₅ CH ₂ C(CH ₃)=CH ₂	763-29-1	598	2
3	86	84	C ₆ H ₁₂ 1-Pentene, 2-methyl- (CAS) 2-Methyl-1-pentene \$\$ 4-Methyl-4-pentene \$\$	763-29-1	2383	3
4	85	98	C ₇ H ₁₄ 2-Heptene, (E)- (CAS) trans-2-Heptene \$\$ (E)-2-Heptene \$\$	14686-13-6	4793	3
5	85	112	C ₈ H ₁₆ Cyclobutane, butyl- \$\$ Butane, 1-cyclobutyl- \$\$ n-Butylcyclobutane \$\$	13152-44-8	8767	3

Library Name

(1) NIST12.LIB (2) MIST62.LIB (3) WILEY229.LIB

<Unknown Spectrum>

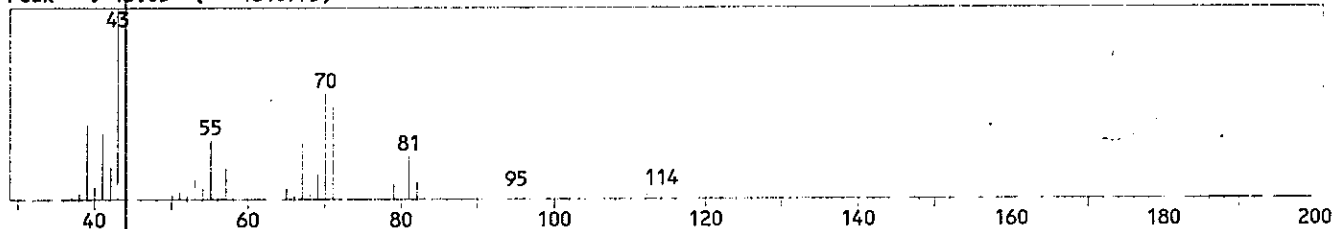
Data : PNKPT11A.D03

Mass Peak # : 40 Ret. Time : 8.608

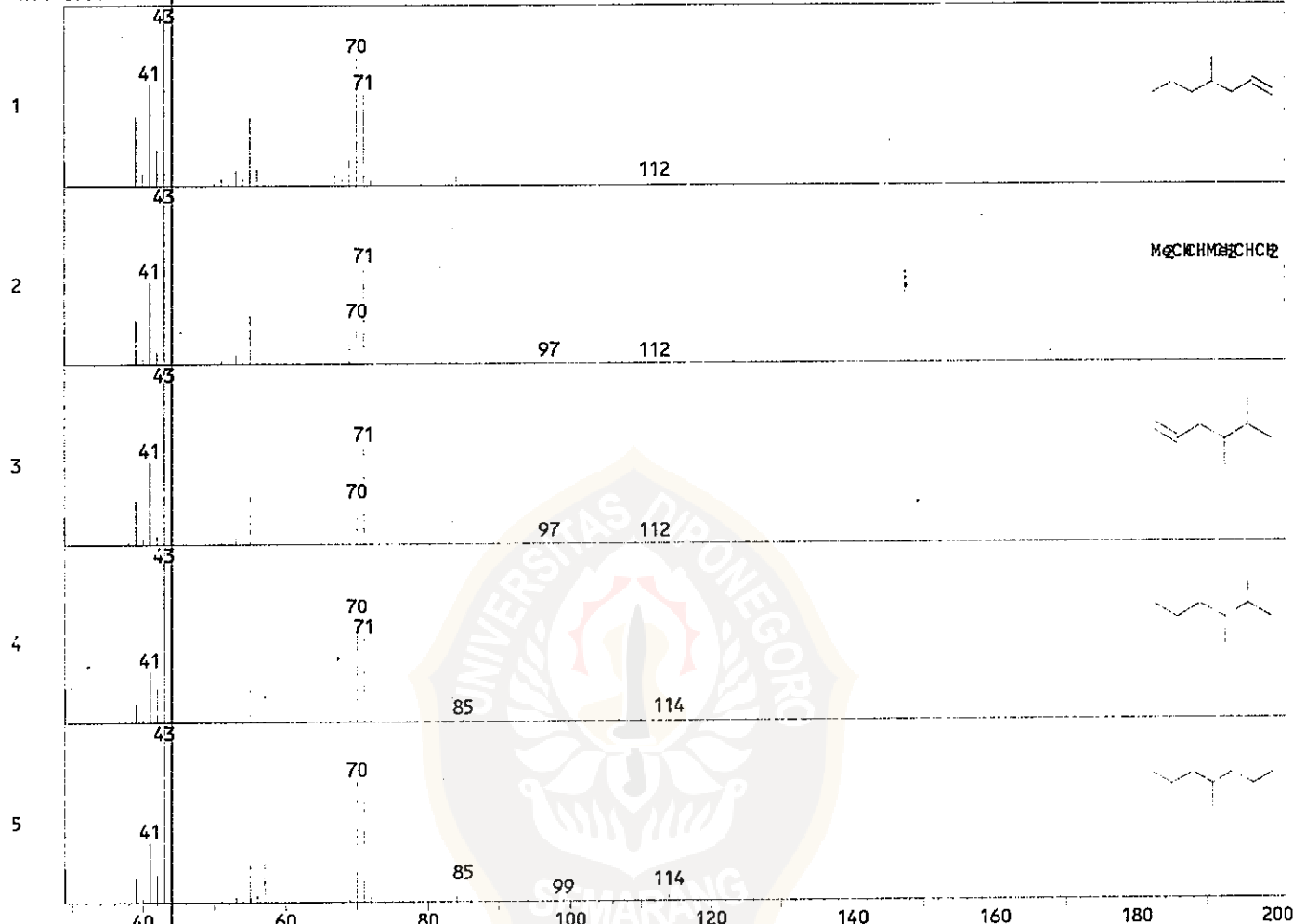
Scan # : 194 B.G. Scan # : 186

Base Peak : 43.05 (4640775)

51



<Hit List>



No	SI	Mol. Wgt.	Mol. Form./Compound Name	CAS No.	Entry	LIB#
1	88	112	C8H16 1-Heptene, 4-methyl- \$\$ 4-Methyl-1-heptene	13151-05-8	2675	2
2	87	112	C8H16 1-Hexene, 4,5-dimethyl- (CAS) 4,5-DIMETHYLHEX-1-ENE \$\$ 4,5-Dimethyl-1-hexene \$\$	16106-59-5	8708	3
3	87	112	C8H16 1-Hexene, 4,5-dimethyl-	16106-59-5	1784	1
4	87	114	C8H18 Hexane, 2,3-dimethyl- \$\$ 2,3-Dimethylhexane	584-94-1	3097	2
5	86	114	C8H18 Heptane, 4-methyl-	589-53-7	1989	1

Library Name

(1) NIST12.LIB (2) NIST62.LIB (3) WILEY229.LIB

<Unknown Spectrum>

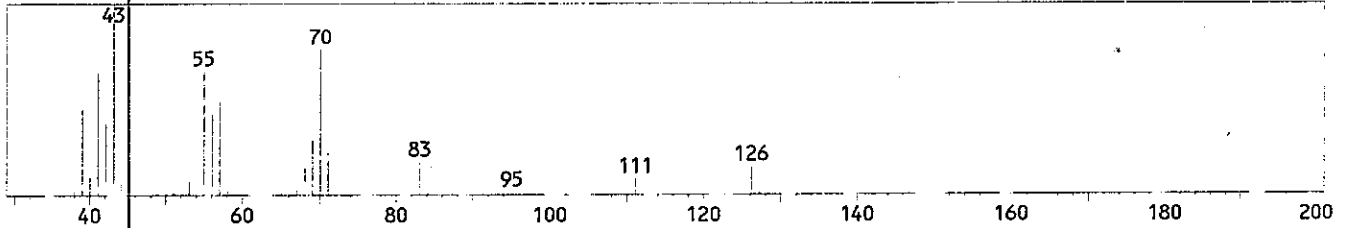
Data : PNKPT11A.D03

Mass Peak # : 31 Ret. Time : 8.933

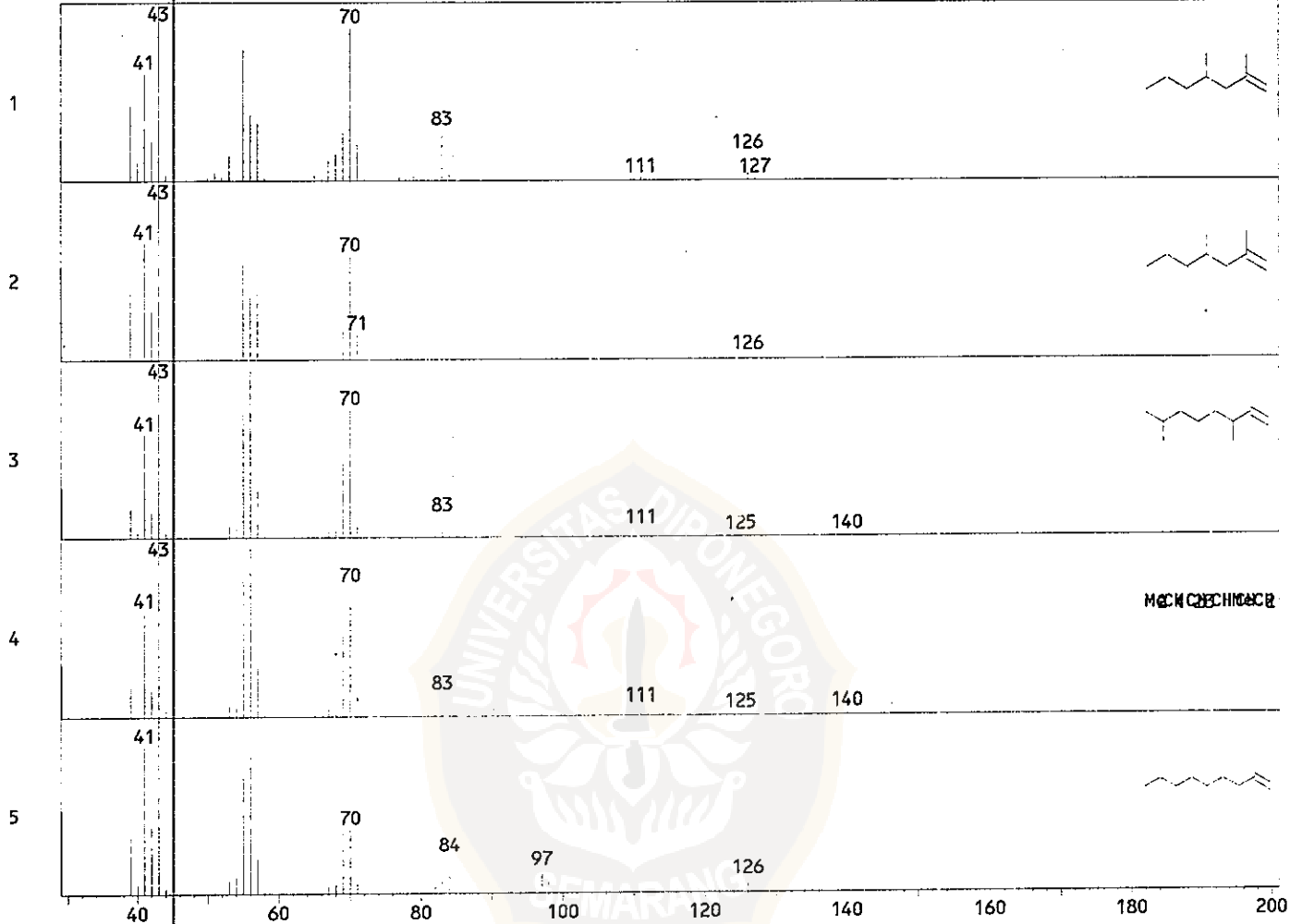
Scan # : 233 B.G. Scan # : 266

Base Peak : 43.15 (14440397)

52



<Hit List>



No	SI	Mol. Wgt.	Mol. Form./Compound Name	CAS No.	Entry	LIB#
1	95	126	C ₉ H ₁₈ 2,4-Dimethyl-1-heptene	19549-87-2	4662	2
2	89	126	C ₉ H ₁₈ 2,4-Dimethyl-1-heptene	19549-87-2	2715	1
3	88	140	C ₁₀ H ₂₀ 1-Octene, 3,7-dimethyl- \$\$\$ 2,6-Dimethyl-7-octene \$\$\$ 3,7-Dimethyloct-1-ene \$\$\$ 3,7-Dime	4984-01-4	7587	2
4	88	140	C ₁₀ H ₂₀ 1-Octene, 3,7-dimethyl- (CAS) 2,6-Dimethyl-7-octene \$\$\$ 3,7-Dimethyloct-1-ene \$\$\$	4984-01-4	21999	3
5	88	126	C ₉ H ₁₈ 1-Nonene \$\$\$ n-Non-1-ene \$\$\$ 1-C ₉ H ₁₈ \$\$\$ Nonene \$\$\$ Nonene-(1) \$\$\$ NONYLENE	124-11-8	4675	2

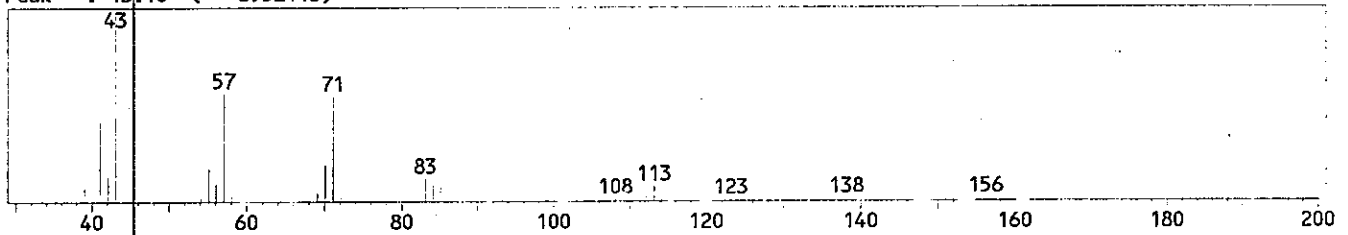
Library Name
(1) NIST12.LIB (2) NIST62.LIB (3) WILEY229.LIB

<Unknown Spectrum>

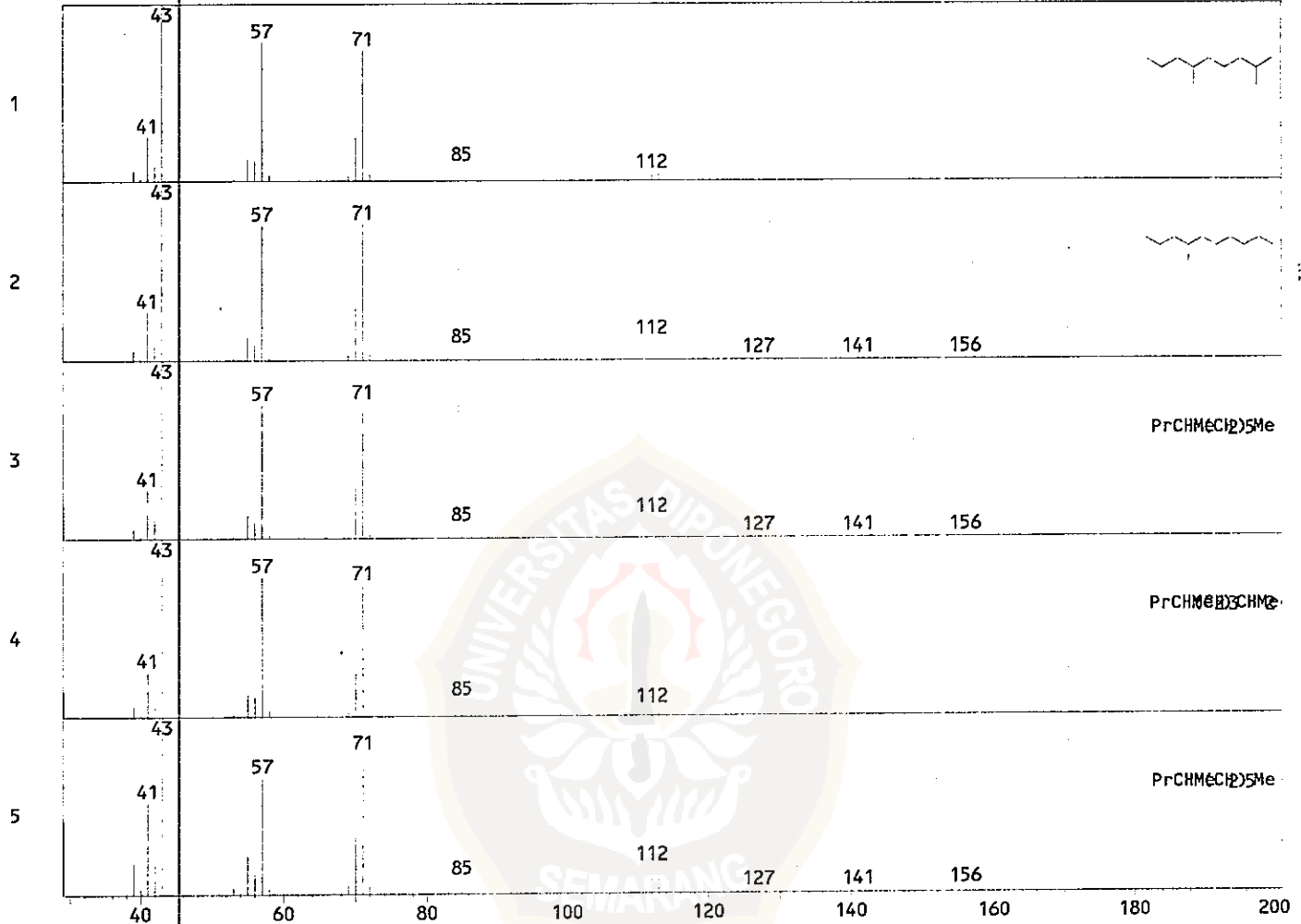
Data : PNKPT11A.D03

Mass Peak # : 31 Ret. Time : 9.525
Scan # : 304 B.G. Scan # : 279
Base Peak : 43.10 (6952446)

53



<Hit List>



No	SI	Mol. Wgt.	Mol. Form./Compound Name	CAS No.	Entry	LIB#
1	92	156	C ₁₁ H ₂₄ Nonane, 2,6-dimethyl- \$\$ 2,6-Dimethylnonane	17302-28-2	11598	2
2	92	156	C ₁₁ H ₂₄ Decane, 4-methyl-	2847-72-5	5088	1
3	92	156	C ₁₁ H ₂₄ Decane, 4-methyl- (CAS) 4-METHYLDECANE \$\$	2847-72-5	33446	3
4	92	156	C ₁₁ H ₂₄ Nonane, 2,6-dimethyl- (CAS) 2,6-Dimethylnonane \$\$	17302-28-2	33454	3
5	91	156	C ₁₁ H ₂₄ Decane, 4-methyl- (CAS) 4-METHYLDECANE \$\$	2847-72-5	33445	3

Library Name
(1) NIST12.LIB (2) NIST62.LIB (3) WILEY229.LIB

<Unknown Spectrum>

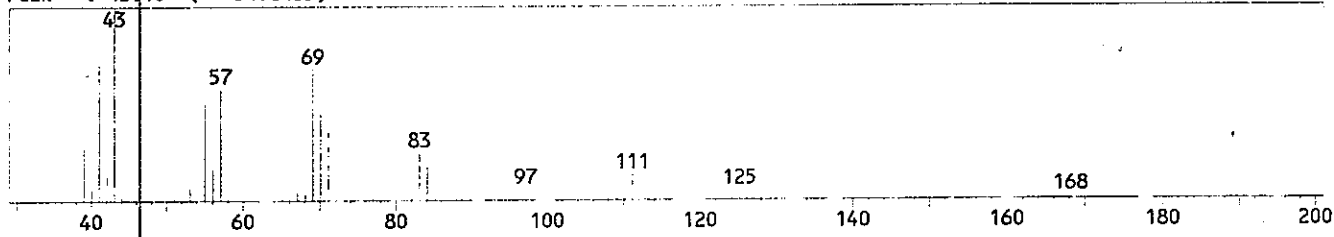
Data : PNKPT11A.D03

Mass Peak # : 42 Ret. Time : 10.675

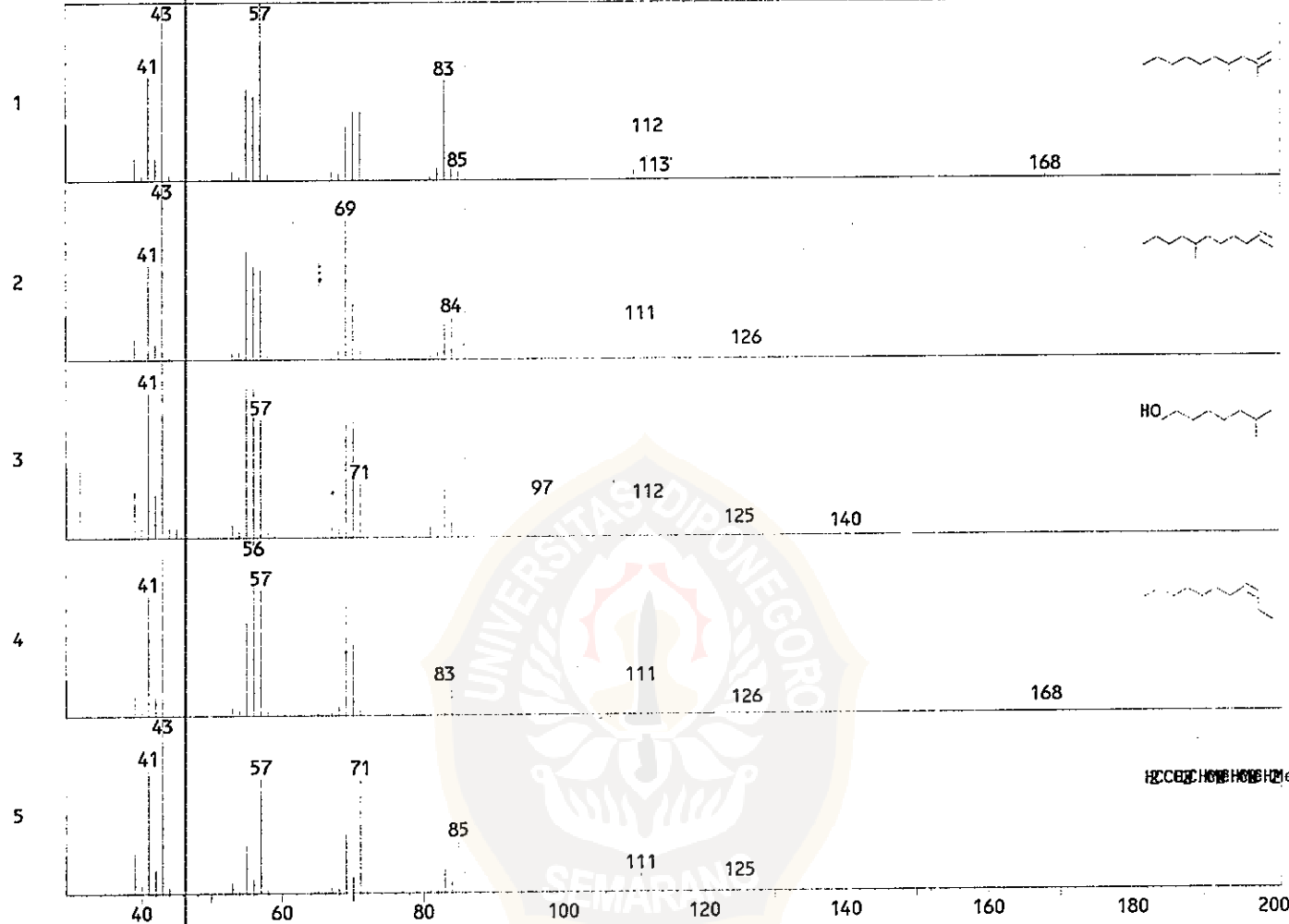
Scan # : 442 B.G. Scan # : 416

Base Peak : 43.10 (5176435)

54



<Hit List>



No	SI	Mol. Wgt.	Mol. Form./Compound Name	CAS No.	Entry	LIB#
1	90	168	C ₁₂ H ₂₄ 1-Decene, 2,4-dimethyl-	55170-80-4	14795	2
2	90	168	C ₁₂ H ₂₄ 1-Undecene, 7-methyl-	74630-42-5	14715	2
3	90	158	C ₁₀ H ₂₂ O 1-Octanol, 3,7-dimethyl- \$\$ Citronellol, dihydro- \$\$ Dihydrocitronellol \$\$ Geraniol t	106-21-8	12080	2
4	90	168	C ₁₂ H ₂₄ 3-Undecene, 7-methyl-, (Z)-	74630-49-2	14737	2
5	90	168	C ₁₂ H ₂₄ 1-Nonene, 4,6,8-trimethyl- (CAS) 4,6,8-TRIMETHYLNONENE-1 \$\$	54410-98-9	42265	3

Library Name
(1) NIST12.LIB (2) NIST62.LIB (3) WILEY229.LIB

<Unknown Spectrum>

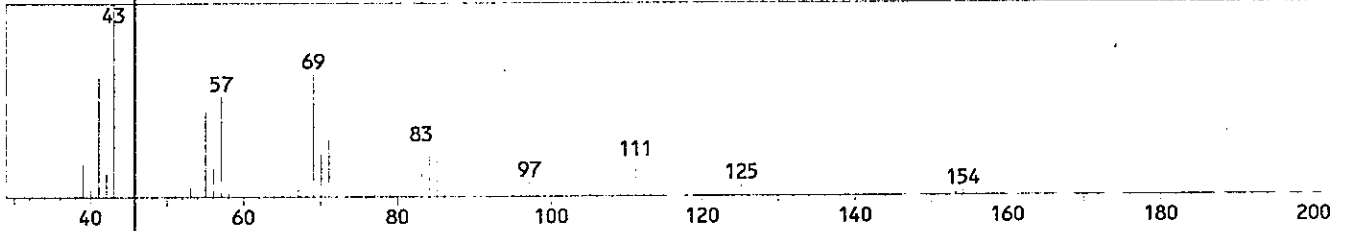
Data : PNKPT11A.D03

Mass Peak # : 44 Ret. Time : 14.867

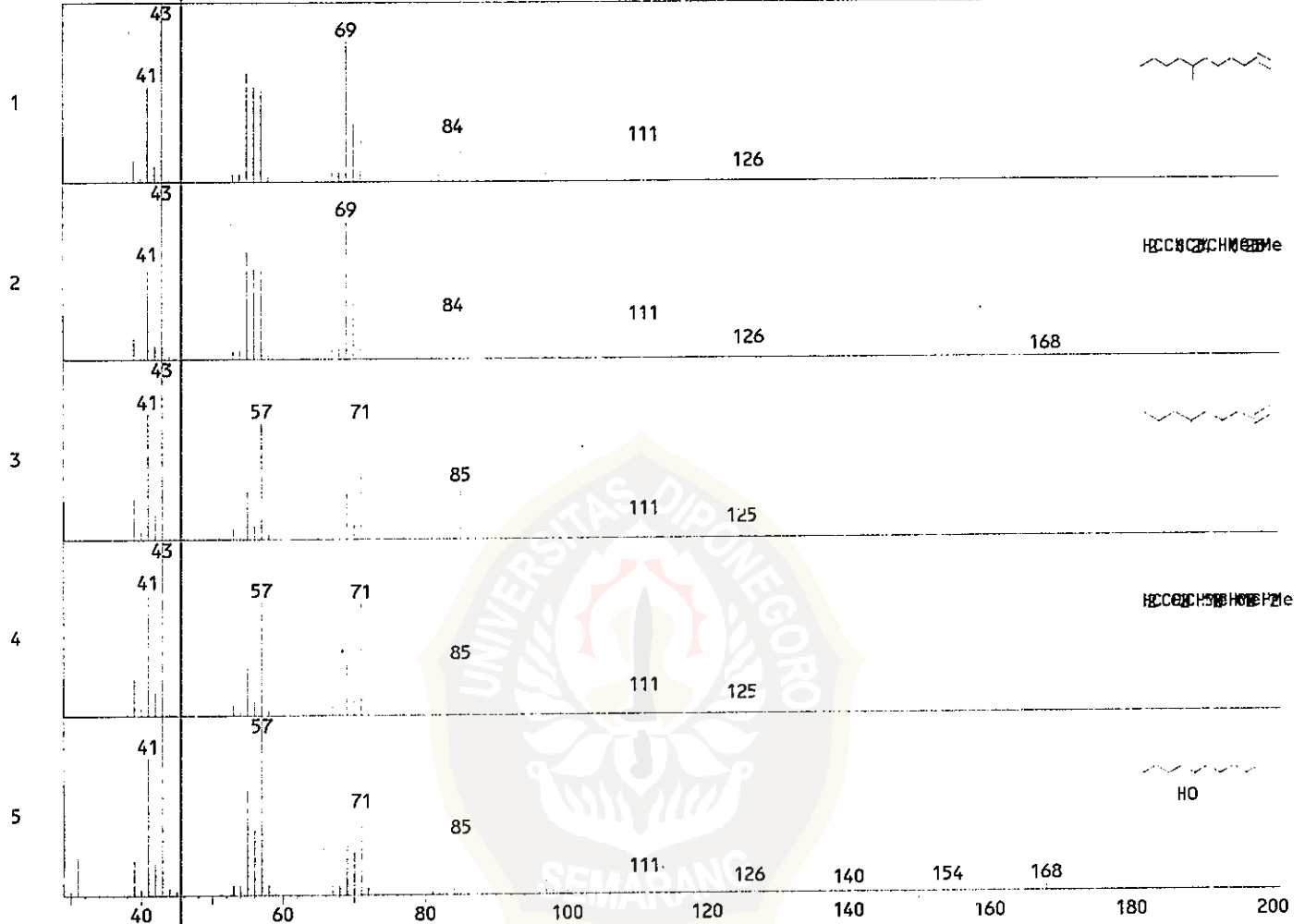
Scan # : 945 B.G. Scan # : 960

Base Peak : 43.10 (4132976)

55



<Hit List>



No	SI	Mol. Wgt.	Mol. Form./Compound Name	CAS No.	Entry	LIB#
1	92	168	C12H24 1-Undecene, 7-methyl-	74630-42-5	14715	2
2	92	168	C12H24 1-Undecene, 7-methyl- (CAS)	74630-42-5	42202	3
3	90	168	C12H24 1-Nonene, 4,6,8-trimethyl-	54410-98-9	14791	2
4	90	168	C12H24 1-Nonene, 4,6,8-trimethyl- (CAS)	54410-98-9	42265	3
5	89	186	C12H26O 1-Octanol, 2-butyl-	3913-02-8	6873	1

Library Name
(1) NIST12.LIB (2) NIST62.LIB (3) WILEY229.LIB

Lampiran G. Data GC-MS hasil pirolisis katalitik campuran plastik-tempurung kelapa pada perbandingan massa 1:1

Merek alat: GC-MS SHIMADZU QP-5000

KONDISI OPERASI

Jenis pengion : Electron Impact

Jenis kolom : CPSIL5CB

Panjang kolom : 25 m

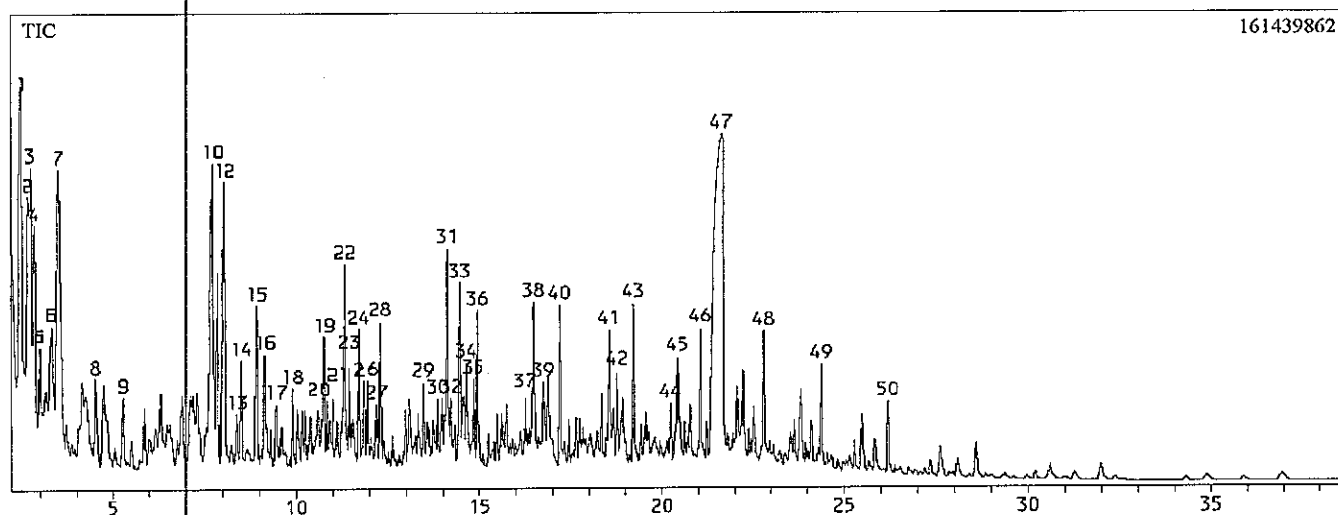
Suhu kolom : 100 °C s.d. 290 °C

Gas pembawa : He

Suhu detektor : 300 °C



*** CLASS-5000 *** Report No. = 1 Data : RUSENO.D01
Sample : PKPTK 1:1, RUSENO
Operator : poy
Method File Name : RUSENO.NET



Sample : PKPTK 1:1, RUSSENO
 Operator : poy
 Method File Name : RUSENO.MET

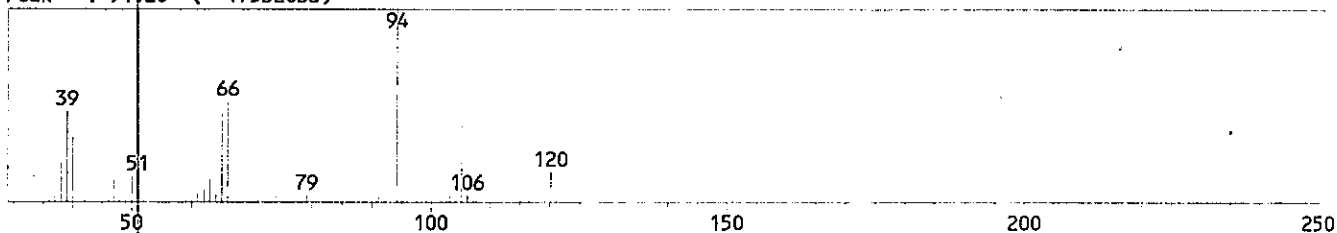
**** Peak Report ****

PKNO	R.Time	I.Time - F.Time	Area	Height	A/H(sec)	MK	%Total	Name
1	2.466	2.367 - 2.525	527133266	88595461	5.950	E	4.35	✓
2	2.642	2.525 - 2.675	312636794	71064974	4.399	V	2.58	
3	2.711	2.675 - 2.775	374565190	83596622	4.481	V	3.09	✓
4	2.829	2.775 - 2.900	272601446	67058086	4.065	V	2.25	
5	2.975	2.900 - 3.033	110800736	27988030	3.959		0.91	
6	3.317	3.033 - 3.408	371008537	36299593	10.221	V	3.06	
7	3.495	3.408 - 3.667	697961076	93793302	7.441	V	5.76	✓
8	4.515	4.442 - 4.642	131847340	27141831	4.858		1.09	
9	5.275	5.200 - 5.350	85678797	23158631	3.700		0.71	
10	7.742	7.592 - 7.808	614010061	96544623	6.360		5.06	
11	7.871	7.808 - 7.925	209412715	63141563	3.317	V	1.73	
12	8.059	7.925 - 8.125	457198767	96227254	4.751		3.77	
13	8.400	8.125 - 8.450	79938809	16791443	4.761	V	0.66	
14	8.513	8.450 - 8.567	94078783	35057356	2.684	V	0.78	
15	8.935	8.567 - 9.000	233571744	54343366	4.298	V	1.93	
16	9.148	9.000 - 9.192	137583916	37296773	3.689		1.13	
17	9.469	9.192 - 9.542	149055367	20429925	7.296	V	1.23	
18	9.911	9.542 - 9.983	119322815	25322903	4.712	V	0.98	
19	10.763	9.983 - 10.817	487712014	42539214	11.465	V	4.02	✓
20	10.858	10.817 - 10.892	49609385	20592819	2.409	V	0.41	
21	11.000	10.892 - 11.042	89845846	21500370	4.179	V	0.74	
22	11.332	11.042 - 11.400	324027296	67470597	4.802	V	2.67	
23	11.455	11.400 - 11.492	88581804	36241802	2.444	V	0.73	
24	11.711	11.492 - 11.758	177707689	44583775	3.986	V	1.47	
25	11.859	11.758 - 11.900	83712620	26595390	3.148	V	0.69	
26	11.939	11.900 - 12.000	65003598	26942980	2.413	V	0.54	
27	12.200	12.000 - 12.242	80551576	18742144	4.298	V	0.66	
28	12.295	12.242 - 12.367	143063865	47173737	3.033	V	1.18	
29	13.465	13.417 - 13.517	67488645	25585244	2.638		0.56	
30	13.867	13.517 - 13.925	152605153	20278541	7.525	V	1.26	
31	14.129	13.925 - 14.183	324820698	72138644	4.503	V	2.68	
32	14.225	14.183 - 14.250	50863258	20705516	2.457	V	0.42	
33	14.469	14.258 - 14.508	231965245	60729451	3.820	V	1.91	
34	14.640	14.508 - 14.683	183633178	33106892	5.547	V	1.51	
35	14.842	14.683 - 14.892	112699425	27914308	4.037	V	0.93	
36	14.949	14.892 - 15.000	130244287	51333167	2.537		1.07	
37	16.244	15.692 - 16.292	118368181	20341578	5.819		0.98	
38	16.480	16.292 - 16.525	178829974	51737179	3.457	V	1.47	
39	16.742	16.525 - 17.158	255744745	23669209	10.805	V	2.11	
40	17.205	17.158 - 17.275	134069590	51438056	2.606		1.11	
41	18.555	18.492 - 18.592	108646637	38986826	2.787		0.90	
42	18.770	18.592 - 18.817	105711945	27373815	3.862	V	0.87	
43	19.225	19.150 - 19.267	154129632	54398196	2.833		1.27	
44	20.250	19.267 - 20.292	318106038	19601392	16.229	V	2.62	
45	20.436	20.292 - 20.575	201236516	35339332	5.694		1.66	
46	21.066	20.575 - 21.125	266839367	45034371	5.925	V	2.20	
47	21.637	21.125 - 22.333	2122105952	110353044	19.230	V	17.50	✓
48	22.797	22.333 - 22.883	162549420	40261635	4.037		1.34	
49	24.381	24.317 - 24.467	95932216	32536170	2.948		0.79	
50	26.201	26.133 - 26.283	80143825	23856882	3.359		0.66	

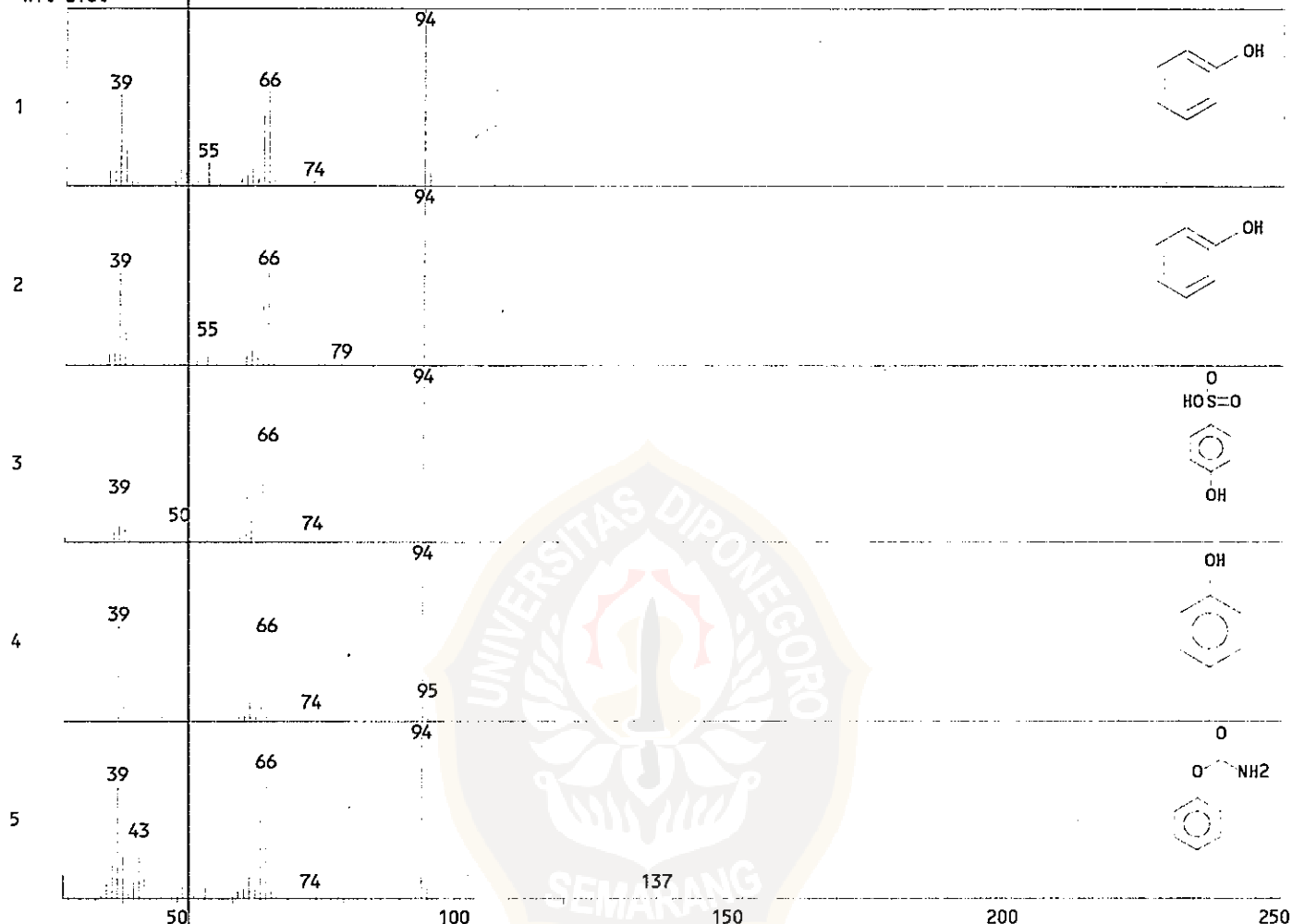
Total 12124955784 100.00

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Data : RUSENO.D01
 Mass Peak # : 49 Ret. Time : 2.467
 Scan # : 57 B.G. Scan # : 42
 Base Peak : 94.20 (17532033)



<Hit List>



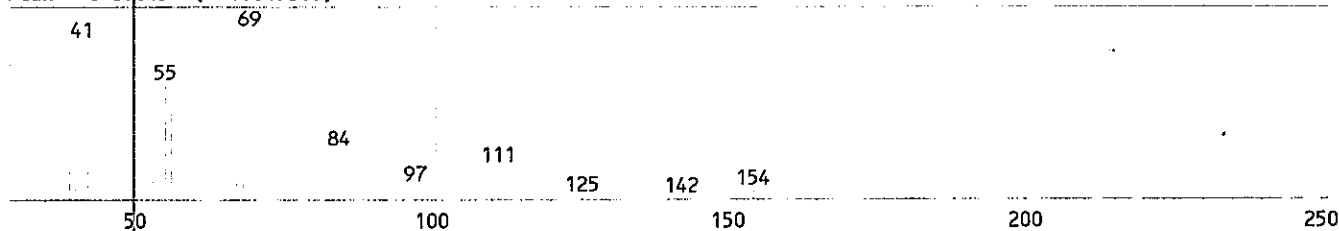
No	SI	Mol. Wgt.	Mol. Form./Compound Name	CAS No.	Entry	LIB#
1	85	94	C ₆ H ₆ O Phenol (CAS) IZAL \$ \$ ENT 1814 \$ \$ PhOH \$ \$ Benzenol \$ \$ Oxybenzene \$ \$ Monophenol \$ \$ Phen	108-95-2	3910	3
2	84	94	C ₆ H ₆ O Phenol (CAS) IZAL \$ \$ ENT 1814 \$ \$ PhOH \$ \$ Benzenol \$ \$ Oxybenzene \$ \$ Monophenol \$ \$ Phen	108-95-2	3915	3
3	82	174	C ₆ H ₆ O ₄ S Benzenesulfonic acid, 4-hydroxy- \$ \$ Benzenesulfonic acid, p-hydroxy- \$ \$ p-Hydroxybenz	98-67-9	16038	2
4	82	94	C ₆ H ₆ O Phenol	108-95-2	835	1
5	80	137	C ₇ H ₇ NO ₂ Carbamic acid, phenyl ester \$ \$ Phenyl carbamate	622-46-8	6730	2

Library Name

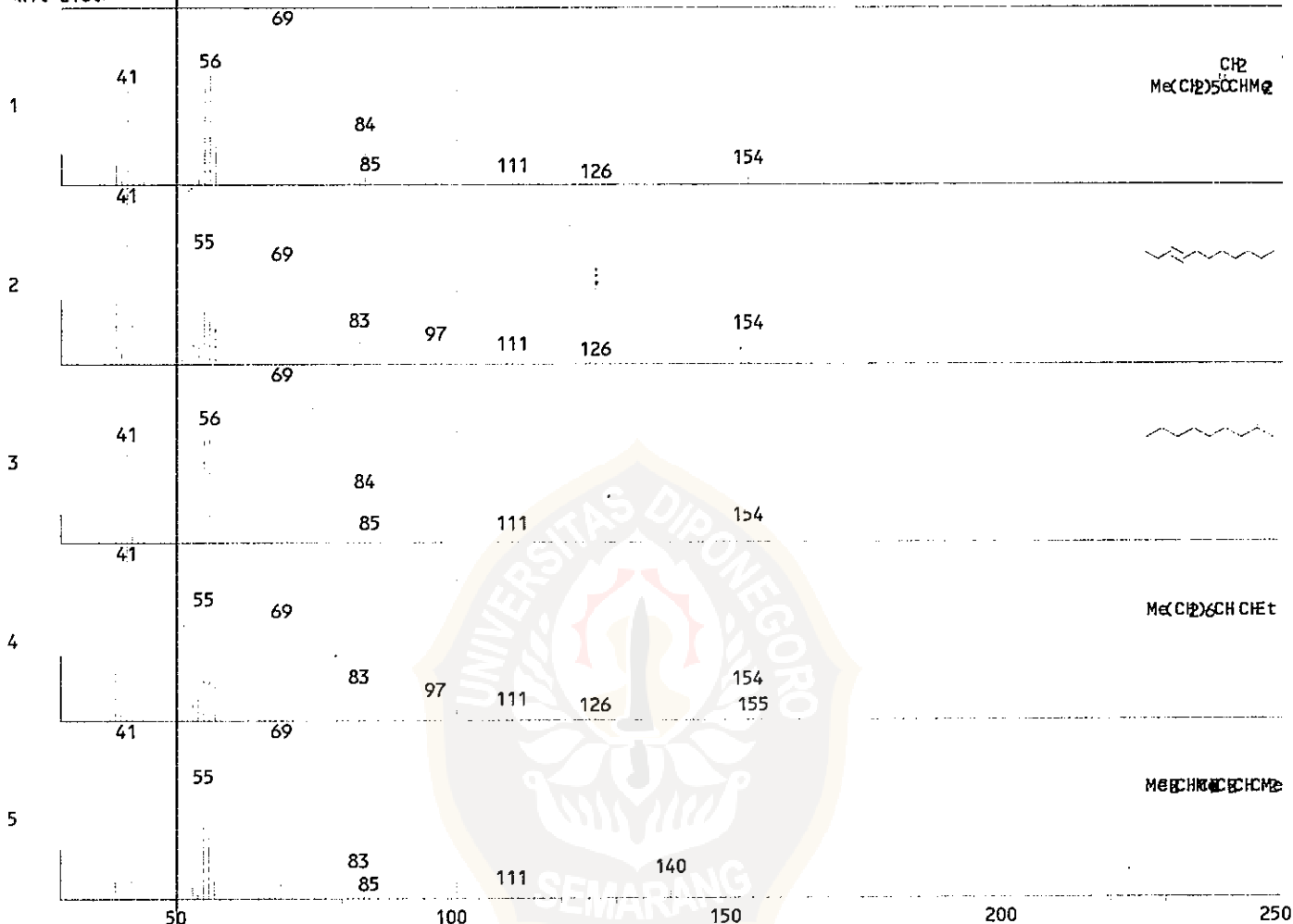
(1) NIST12.LIB (2) NIST62.LIB (3) WILEY229.LIB

<Unknown Spectrum>

Data : RUSENO.D01
Mass Peak # : 44 Ret. Time : 2.717
Scan # : 87 B.G. Scan # : 95
Base Peak : 69.15 (10047610)



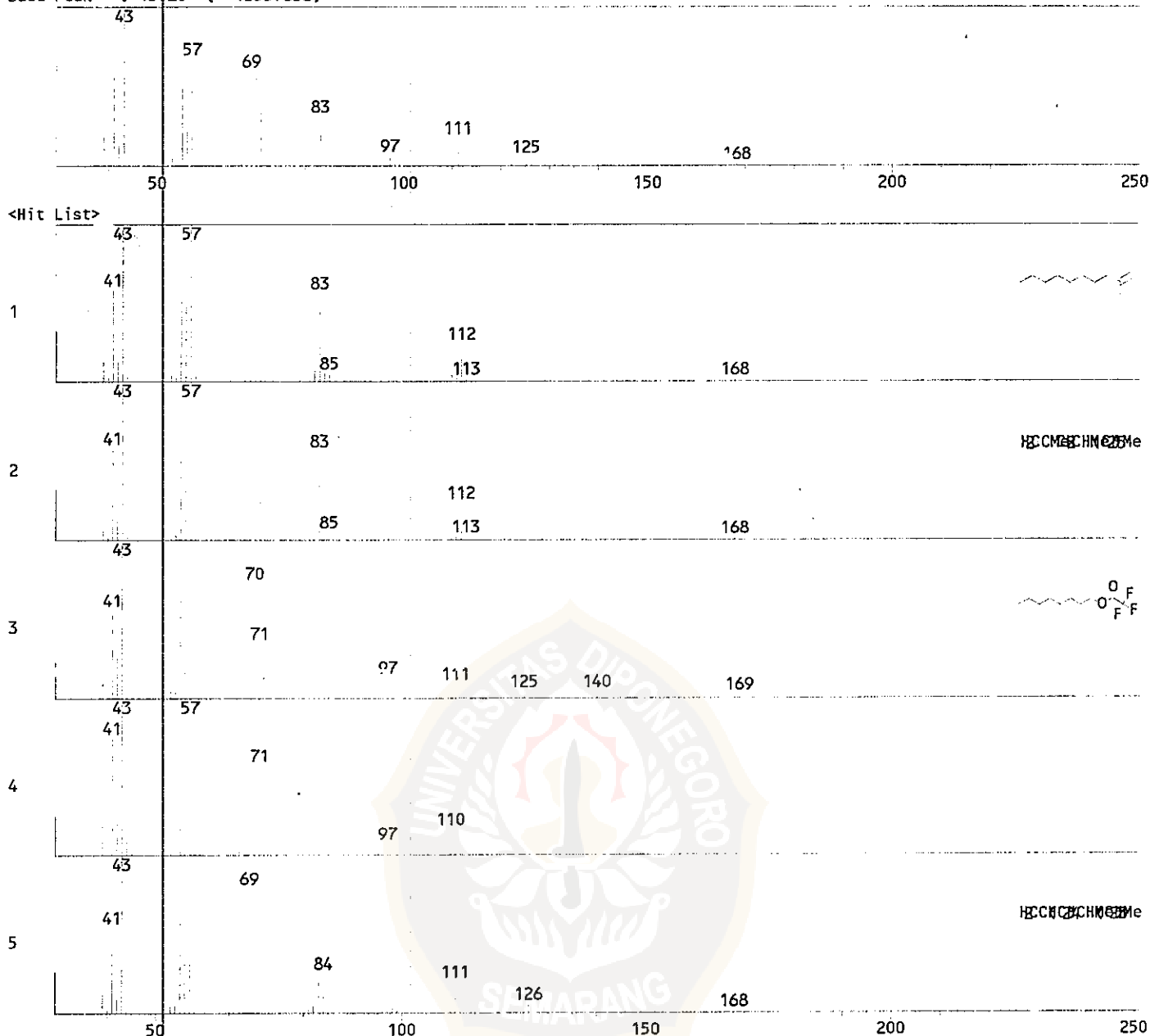
<Hit List>



No	SI	Mol.Wgt.	Mol.Form./Compound Name	CAS No.	Entry	LIB#
1	91	154	C11H22 Nonane, 2-methyl-3-methylene- (CAS) 2-Isopropyl-1-octene	55499-08-6	31952	3
2	91	154	C11H22 3-Undecene, (E)- (E)-3-Undecene trans-3-Undecene 3-Undecene, Trans-	1002-68-2	11074	2
3	90	154	C11H22 Nonane, 2-methyl-3-methylene- 2-Isopropyl-1-octene	55499-08-6	11051	2
4	90	154	C11H22 3-Undecene, (E)- (CAS) (E)-3-Undecene trans-3-Undecene 3-Undecene, trans-	1002-68-2	31921	3
5	90	140	C10H20 2-Octene, 2,6-dimethyl- (CAS) 2,6-Dimethyl-2-octene 2,6-Dimethyl-oct-2-ene	4057-42-5	22005	3

Library Name
(1) NIST12.LIB (2) NIST62.LIB (3) WILEY229.LIB

<Unknown Spectrum>
 Data : RUSENO.D01
 Mass Peak # : 37 Ret. Time : 3.500
 Scan # : 181 B.G. Scan # : 169
 Base Peak : 43.20 (13557638)



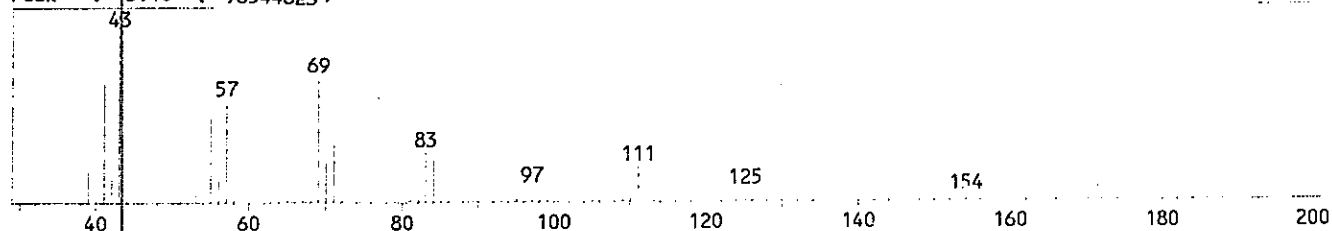
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No	SI	Mol. Wgt.	Mol. Form./Compound Name	CAS No.	Entry	LIB#
1	90	168	C ₁₂ H ₂₄ 1-Decene, 2,4-dimethyl-	55170-80-4	14795	2
2	90	168	C ₁₂ H ₂₄ 1-Decene, 2,4-dimethyl- (CAS)	55170-80-4	42258	3
3	90	254	C ₁₂ H ₂₁ F ₃ O ₂ Trifluoroacetyl-3,7-dimethyloctanol	- -0	34655	2
4	90	156	C ₁₀ H ₂₀ O Isocotane, (ethenyloxy)-	37769-62-3	5059	1
5	89	168	C ₁₂ H ₂₄ 1-Undecene, 7-methyl- (CAS)	74630-42-5	42202	3

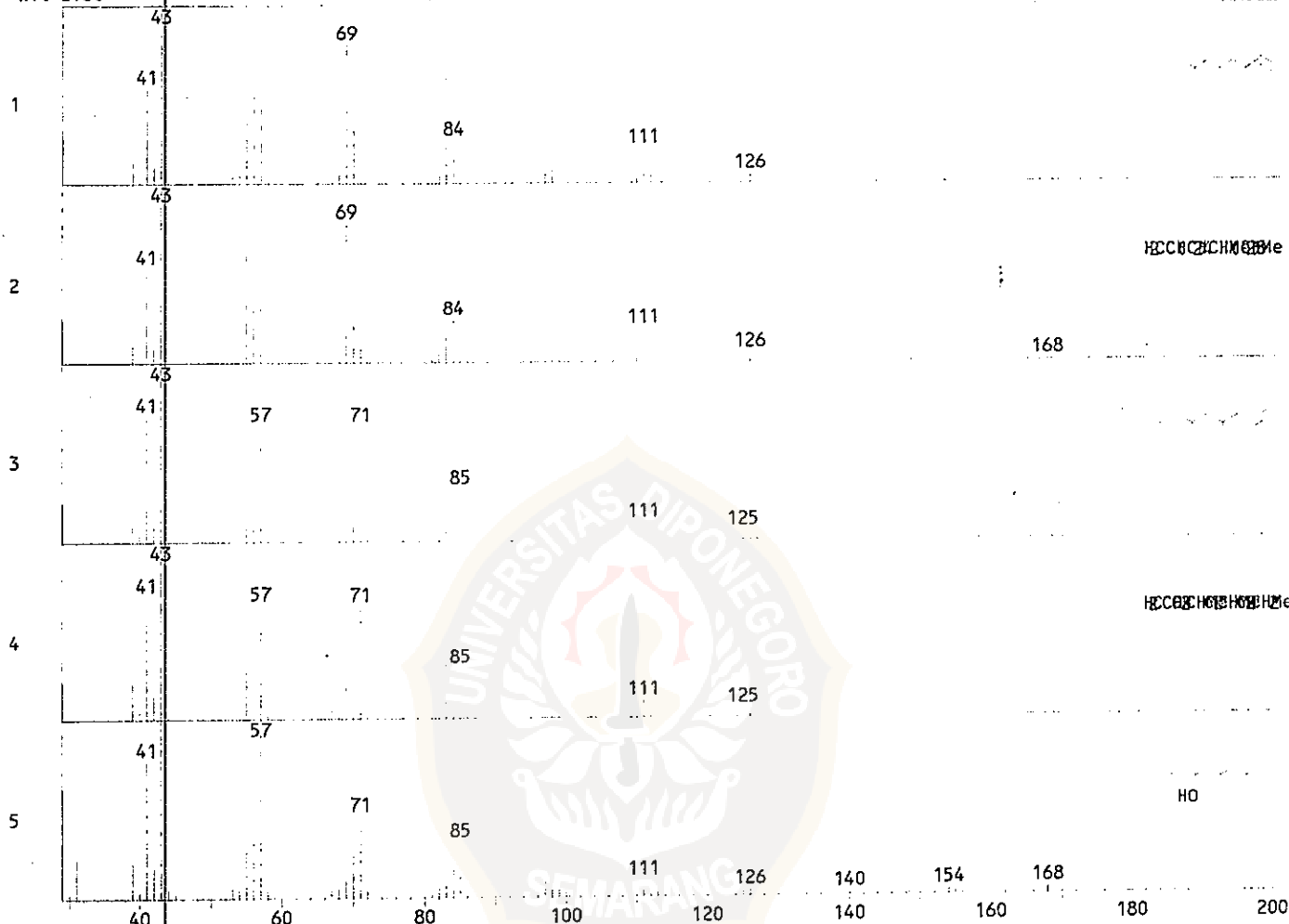
Library Name
 (1) NIST12.LIB (2) NIST62.LIB (3) WILEY229.LIB

<Unknown Spectrum>

Data : RUSENO.D01
 Mass Peak # : 44 Ret. Time : 7.742
 Scan # : 945 B.G. Scan # : 960
 Base Peak : 43.10 (96544623)



<Hit List>

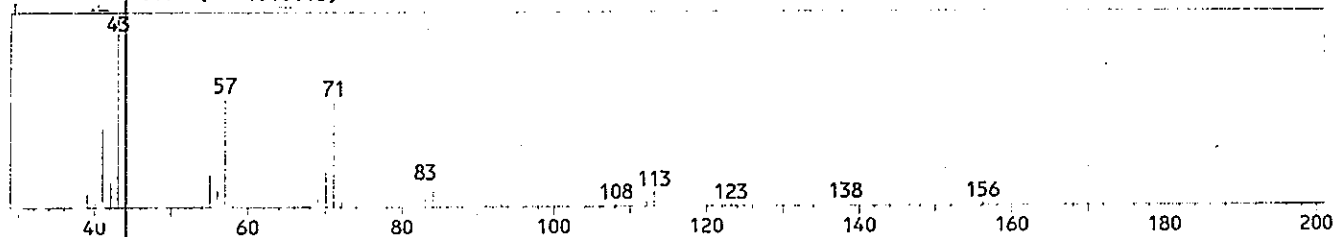


No	SI	Mol. Wgt.	Mol. Form./Compound Name	CAS No.	Entry	LIB#
1	92	168	C ₁₂ H ₂₄ 1-Undecene, 7-methyl-	74630-42-5	14715	2
2	92	168	C ₁₂ H ₂₄ 1-Undecene, 7-methyl- (CAS)	74630-42-5	42202	3
3	90	168	C ₁₂ H ₂₄ 1-Nonene, 4,6,8-trimethyl-	54410-98-9	14791	2
4	90	168	C ₁₂ H ₂₄ 1-Nonene, 4,6,8-trimethyl- (CAS)	54410-98-9	42265	3
5	89	186	C ₁₂ H ₂₆ O 1-Octanol, 2-butyl-	3913-02-8	6873	1

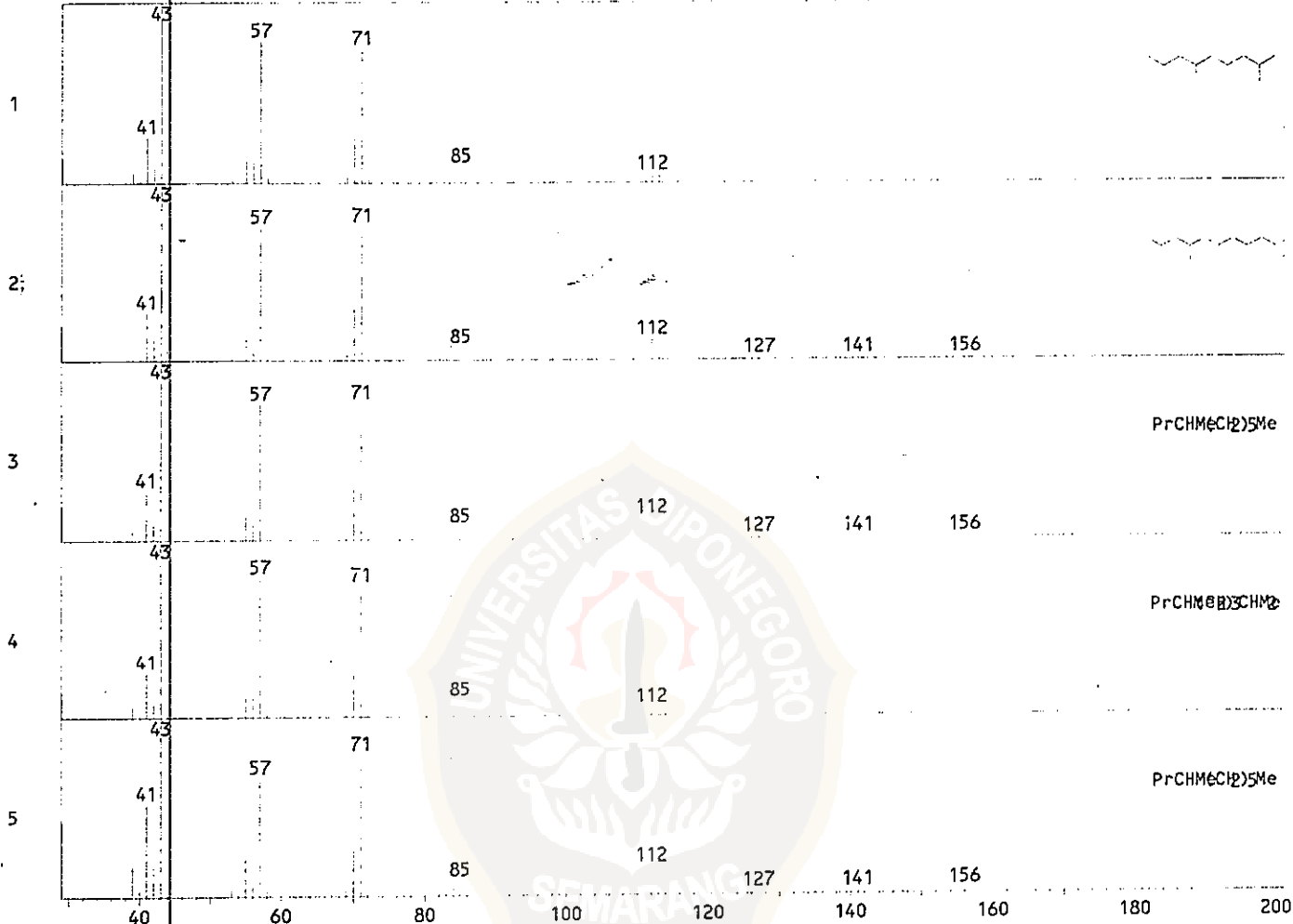
Library Name
 (1) NIST12.LIB (2) NIST62.LIB (3) WILEY229.LIB

<Unknown Spectrum>

Data : PUSEMO.D01
Mass Peak # : 101 Ret. Time : 10.767
Scan # : 1053 B.G. Scan # : 1018
Base Peak : 43.10 (4010148)



<Hit List>



No	SI	Mol. Wgt.	Mol. Form./Compound Name	CAS No.	Entry	LIB#
1	92	156	C11H24 Nonane, 2,6-dimethyl- \$\$ 2,6-Dimethylnonane	17302-28-2	11598	2
2	92	156	C11H24 Decane, 4-methyl-	2847-72-5	5088	1
3	92	156	C11H24 Decane, 4-methyl- (CAS) 4-METHYLDECANE \$\$	2847-72-5	33446	3
4	92	156	C11H24 Nonane, 2,6-dimethyl- (CAS) 2,6-Dimethylnonane \$\$	17302-28-2	33454	3
5	91	156	C11H24 Decane, 4-methyl- (CAS) 4-METHYLDECANE \$\$	2847-72-5	33445	3

Library Name

(1) NIST12.LIB (2) NIST62.LIB (3) WILEY229.LIB

<Unknown Spectrum>

Data : RUSENO.D01

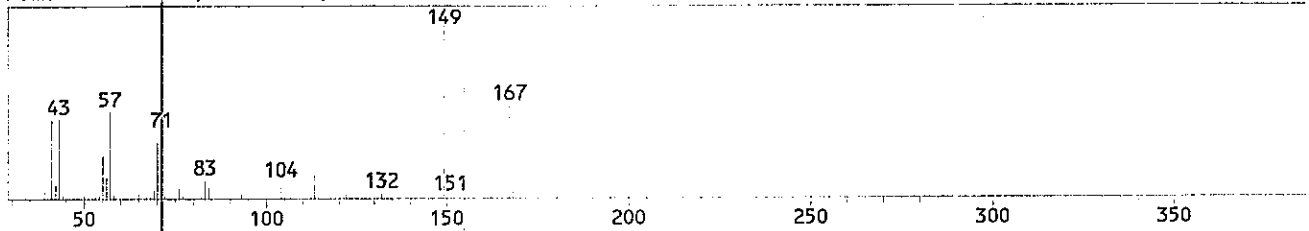
Mass Peak # : 43

Ret. Time : 21.642

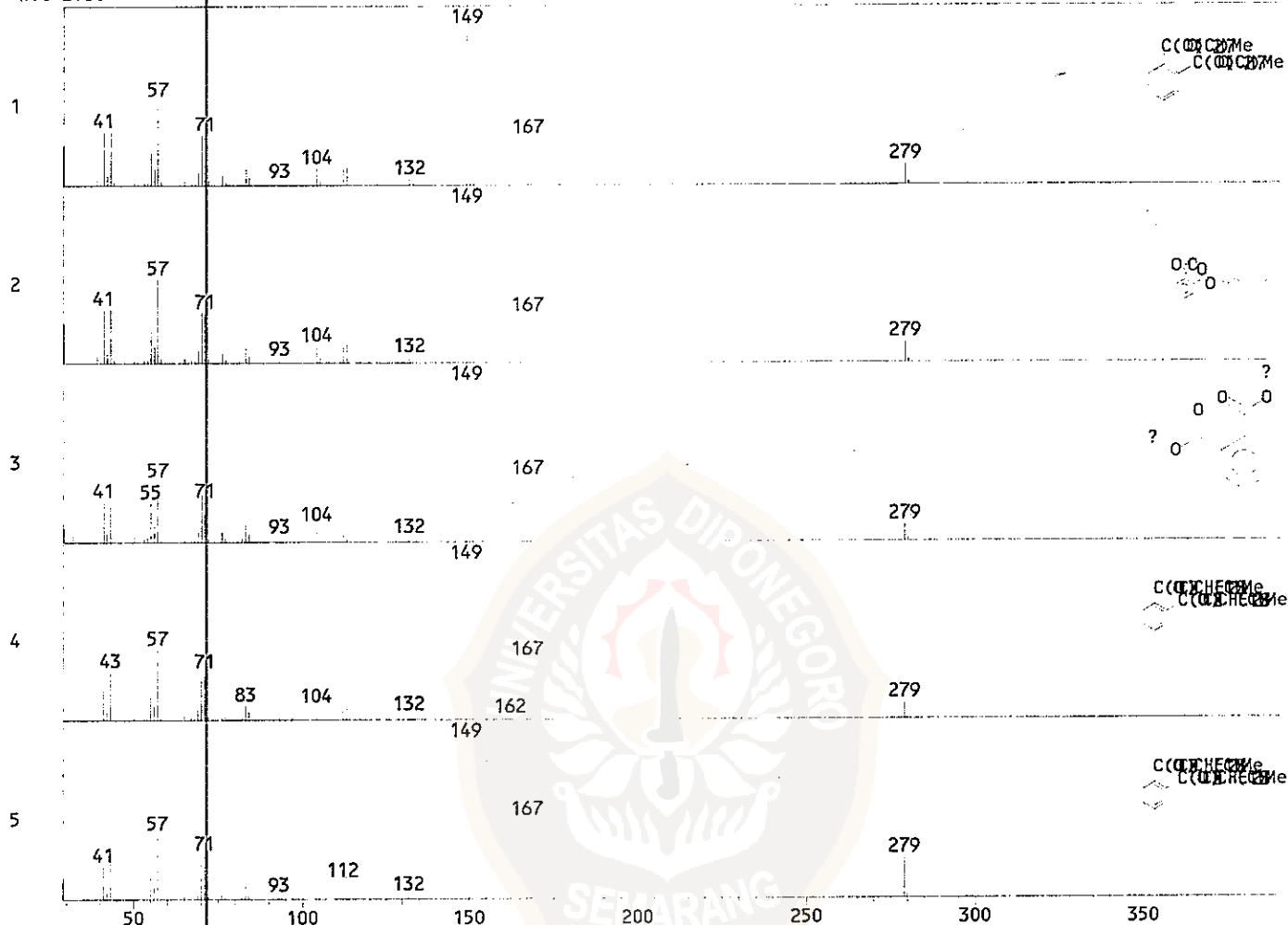
Scan # : 2358

B.G. Scan # : 2381

Base Peak : 149.20 (21413496)



<Hit List>



No	SI	Mol. Wgt.	Mol. Form./Compound Name	CAS No.	Entry	LIB#
1	94	390	C ₂₄ H ₃₈ O ₄ 1,2-Benzenedicarboxylic acid, dioctyl ester (CAS)	117-84-0	190624	3
2	94	390	C ₂₄ H ₃₈ O ₄ Di-n-octyl phthalate	117-84-0	11937	1
3	92	390	C ₂₄ H ₃₈ O ₄ 1,2-Benzenedicarboxylic acid, diisooctyl ester	27554-26-3	53134	2
4	92	390	C ₂₄ H ₃₈ O ₄ 1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester (CAS)	117-81-7	190634	3
5	90	390	C ₂₄ H ₃₈ O ₄ 1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester (CAS)	117-81-7	190632	3

Library Name

(1) NIST12.LIB (2) NIST62.LIB (3) WILEY229.LIB